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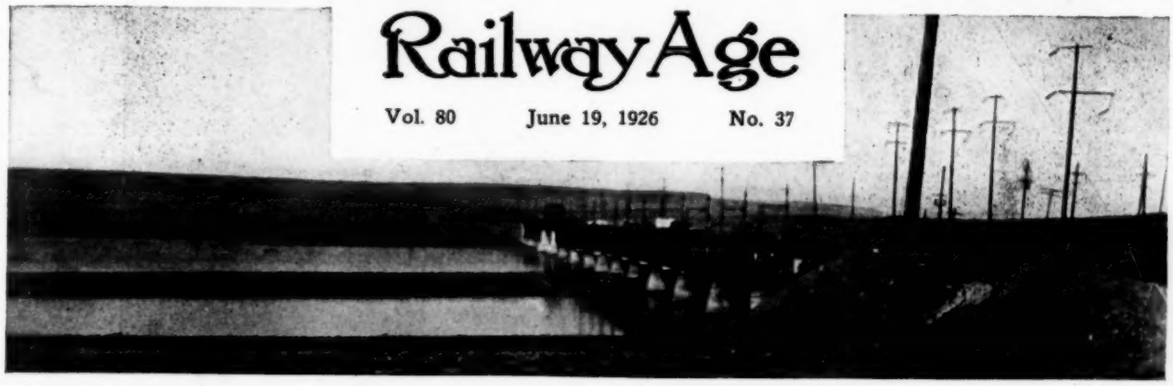

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Vol. 80, No. 37 June 19, 1926

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Do Signals Increase Track Capacity?

THE wisdom of a decision to add a second track to a busy single track division depends on the cost of such improvement and the probable growth of traffic, as was explained by C. A. Morse in an article which was published in the *Railway Age* of January 23. In the opinion of certain readers, however, Mr. Morse neglected to consider the use of automatic signals on a single-track railroad as a means of increasing the track capacity and thus postponing the necessity for second tracking. In view of the fact that automatic signals are now in service on 22,459 miles of single track in the United States it would seem that other railway officers also differed with Mr. Morse. Numerous investigations have led to the conclusion that automatic block signals increase capacity on single track. For example, the Committee on Economics of Railway Operation of the American Railway Engineering Association presented the results of a certain investigation at the last convention in March which showed a saving of 1 hr. 40 min. in road time for each train on a 66-mile single track section recently equipped with signals. The conclusion of the report was that automatic signals will increase the capacity of a busy single-track road. The failure on the part of Mr. Morse to recognize automatic signals as a means of increasing track capacity so as to postpone second tracking has been taken as a challenge by certain members of the Economics committee of the Signal section, A.R.A. who are also members of the American Railway Engineering Association. A letter to the editor dealing with this subject is published elsewhere in this issue.

One Way Not to Lay Rail

THIS is normally the most active season for maintenance of way work. Labor is more plentiful than later when the competition of harvesting operations becomes acute, while the weather is more conducive to work than during the heat of July and August. At the same time the interference from traffic is customarily less than after the grain begins to move. As a result tie renewal, rail laying, ballasting and other improvement work is ordinarily accomplished as rapidly as possible and such is the practice this year on most roads. Yet on a prominent road orders were issued a few days ago suspending all rail laying, ballasting and similar work during the month of June and disbanding gangs organized for this purpose. This order was not prompted by any forebodings regarding the business outlook for the prospects in the territory served by this line are better than normal. Neither does it contemplate the abandonment of the work, but merely its postponement. Rather it was induced by the desire to curb what is normally an adverse "showing" in the early months of the year. The result of this practice, however, will be to add greatly to the cost of this improvement work by reason of the necessity for the reorganization of gangs at a time when the competition for labor is keen and the conduct of the work in the heat of the summer when traffic is heavy. Not the least of the disadvantages of such measures is the discouragement that results among maintenance of way officers who are expected to make every effort to conduct their work with the maximum economy and who see the results of their efforts swept away by measures of this character. If efficiency is to be expected in the conduct of operations in any department, the example must be set at the top.

The Superintendents' Association

NO association of railway officers suffered more severely in the interruption of its work during the war, than the American Association of Railroad Superintendents; likewise, no organization in the railway industry possesses greater opportunities for service than this, now that it has regained its momentum. The increasing interest which the roads are taking in this association, as reflected by a larger attendance from year to year, is evidence of the realization of its value by the management. The convention which was held at Montreal this week was the most successful in the third of a century's history of the organization, both in attendance and in the practical value of the reports, papers and discussions. Yet, as in many other organizations, the very wealth of information was a handicap to the most efficient work, for the program, even though it occupied four days, was so crowded that it was impossible to allow opportunity for adequate discussion of many of the important subjects presented. It would appear highly advisable to reduce the number of subjects to be considered at future meetings in order to permit more thorough consideration to be given to those selected. Unlike the mechanical and the engineering fields, where different organizations exist for various branches and ranks of men within the department, there is only one association serving those in direct charge of transportation activities, including within its membership general managers, general superintendents, division superintendents, train masters and chief dispatchers. As a result, many subjects press for attention and it is to the credit of the leadership in the Superintendents' association that it has steadily advanced in the character of its work. This organization is doing a work for those officers directly on the "firing line" of transportation, and those roads which have not yet taken steps to encourage their men to attend its meetings can well afford to consider whether they are not overlooking an opportunity.

Study Highway Commission Plans for Grade Separation

AN engineer representing one of the railroads recently called on the chief highway engineer of a state for the purpose of discussing the subdivision of costs for certain grade separation projects, but instead of being given an opportunity to present an analysis of his studies, his suggestions were accepted in part on what appeared to be snap judgment. Arguments for a more detailed consideration of his ideas were shut off by the state engineer who said emphatically, "I haven't time to go into any refinements in this matter. I have got to spend $20,000,000 on roads this year."

While this may not be typical, it is a fact that projects for state highways are not accorded the same degree of careful study that is almost invariably given to plans for additions and betterments on the railroads. The fundamental reason for this lies in the profound difference in the auspices under which appropriations are made by the railroads and the states. Besides this, there is a marked difference in the point of view and the training of the engineering staffs. The railway engineer has been schooled by long experience to the necessity for comparative studies. He knows that if he will not consider all reasonable alternatives of design himself, he will find himself unable to answer some embarrassing questions when he submits his recommendations for approval. On the other hand, the enormous pressure to get highway improvements completed at the earliest possible date is not counteracted by so strong an incentive to make every dollar go as far as possible. Consequently it is not surprising that highway locations have not been carried out with the same degree of refinement that obtains in the case of railway locations.

This fact is of vital concern to the railroads in connection with grade separation projects, for lack of thorough engineering studies in the location of an over or undercrossing may result in greater expenditures than are necessary. The engineer of one railroad, recently confronted with a case of this kind, made a careful survey of the site and was able to develop a new location for the highway that entailed no increase in the cost of the road but effected a saving of one-third in that portion of the project in which his railroad had to participate. The advantages of the proposed revision were recognized by the state engineer and it was accepted.

Railway engineers have been keen to develop highway relocations for the purpose of eliminating grade crossings. It is clear that they must also be on the alert to consider the possibility of relocation as affecting the cost of grade separation work.

Revolutionizing Transportation

THERE has been occurring in this country within recent years a revolution in railroad transportation. A large part of the public has become familiar with some of its results. The movement of freight has been greatly speeded up and car shortages have been abolished. Vast economies in operation have been effected, in consequence of which there has been a large increase in the net operating income earned, although rates have been declining, wages have been increasing and one-quarter of the passenger business the railways had six years ago has been lost.

There is nothing more significant in the history of modern industry or in the history of railroads than the developments which have been causing this revolution in transportation, and which promise to cause it to become more marked within future years than it has been thus far. During the last two weeks there have been held at Atlantic City, N. J., some important railway conventions, and in connection with them there has been provided a vast exhibit of railway equipment, machinery and devices. The thoughtful man who visited this exhibit and who knew enough about the things shown to grasp their significance left Atlantic City with a better idea than it is likely he could have got elsewhere of the forces that are causing the transportation revolution.

The means by which the great improvement in railroad operating results are being effected are well illustrated by the changes that are occurring in railroad locomotive power. Everything that is done in building and operating a railroad, from the first grading for construction to the pulling of the throttle on the locomotive, is done to enable locomotives to move trains loaded with passengers and freight, and to move them efficiently. The locomotive and other parts of the railroad plant constantly react upon each other. An increase in the power and efficiency of locomotives makes it necessary to improve other parts of the railroad plant and to adopt better operating methods if the maximum practicable results are to be derived from the advance in locomotive development. Likewise, improvement in other parts of the plant and in operating methods call for and make possible the effective use of better power.

For many years the steam locomotive was the only kind of tractive power the railroads had, and the principal purpose for which locomotives were bought and their size increased was to cope with the vast increase in traffic, which went on almost without interruption for more than twenty years prior to 1921. Within the last fifteen years there has been an unprecedented development and improvement of devices intended to enable locomotives not only to pull heavier loads, but also to make and maintain higher speeds and reduce the consumption of fuel per unit of tonnage handled. Within very recent years there have been introduced improvements which not only equip the locomotive with better devices, but which change the fundamental design of the locomotive itself. In territory where there recently has been a large increase in traffic there is still a tendency, as before the war, to buy locomotives mainly to increase the total tractive power available in order to handle more business. In other territories where the traffic has not increased as much as formerly or where it has actually declined, some lines have given unprecedented attention to the problem of substituting improved power for old power, not merely to handle more traffic but to increase operating efficiency and economy by handling more gross ton-miles per locomotive hour. The effects of the substitution of new for old types of power upon operating results already are easily discernible in general operating statistics, and the more rapidly old power is retired and the most improved power is substituted the more apparent the effects upon operating results will become.

Another very interesting and significant development that is occurring is the differentiation of power. The steam railroads are no longer operated entirely by steam power. The electrified mileage is slowly but constantly increasing. The gas-electric internal combustion locomotive is being introduced. The rail motor car is being more and more widely substituted for the steam passenger train for handling local passenger business. Finally, numerous railways are acquiring motor buses and trucks to operate on the highways in connection with their rail lines. This increase in the number of kinds of power being used, all of which were exhibited in Atlantic City,

is resulting in the adaptation of power to the conditions of operation and to the particular kinds of service to be rendered.

The developments mentioned illustrate strikingly the way in which progress in transportation is being secured by co-ordination of the efforts of the American railroad manager and the American manufacturer. Changes in transportation conditions create a demand from railway officers for new kind of equipment, machinery and devices. Often new kinds of equipment and devices brought out by the manufacturers really create the demand from the railways which they supply. In order satisfactorily to utilize the new equipment officers of the railways have to change operating methods, and changes in operating methods, in turn, stimulate the demand for still better equipment. Thus, operating improvements and improvements in physical facilities constantly stimulate each other. Never has this process been more in evidence or had more significant results than within recent years.

The progress that recently has been and still is being made on the railroads affords a striking illustration of the genius of American railroad men and manufacturers for initiating new methods and machinery that increase industrial efficiency by enlarging production per employee, per ton of materials and fuel and per dollar of capital used. Manufacturing by railways is a subject that has received a good deal of discussion within recent years. Nowhere else have the railways stuck so closely to the business of transportation and left manufacturing for them so largely to other concerns as they have in North America. In no other part of the world has there been made such progress in increasing the transportation output of the railways in proportion to the number of men employed and the amounts of materials, fuel and capital used. It is extremely doubtful if this would have been true if the railroads of this country had engaged largely in manufacturing for themselves; and it seems very probable that the revolutionary progress being made at present in transportation here would not be occurring except for the division of the initiative by which it is being accomplished between those who specialize in railroading and those who specialize in manufacturing.

Why Not Capitalize on the Work of Associations?

THE various associations of railway officers have been prime movers in the advancement of improved practices, the development of better standards and specifications, and the practical application of the results of scientific investigations. That the value of these associations to the railroads is recognized by the managements is attested by the support which they are giving to them. But for some reason many of the railroads are slow in taking advantage of the work which these associations are doing.

As an illustration of this tendency, consider the specifications for Southern yellow pine timbers adopted by the American Railway Engineering Association in 1921. For many years it was the practice to specify long-leaf southern yellow pine timbers for such purposes as bridge stringers, which demand high strength, because long-leaf pine is generally a denser and therefore stronger wood than short-leaf pine or loblolly pine. But some 10 years or more ago it was shown that it was impossible to distinguish long-leaf from short-leaf pine in the finished stick and that the real test of strength was density as determined by the number of annual rings per inch and the relative proportions of summer and spring wood, regardless of the species. In 1921, after three years of study, the American Railway Engineering Association adopted specifications which avoid all differentiation between the various species of southern pine and establish the "density rule" as a primary criterion for grading. However, in spite of the acceptance of the density rule as the criterion for strength of southern yellow pine, not only by the A. R. E. A. but by other associations of wood users, as well as by the manufacturers, some roads still specify long-leaf yellow pine.

Another illustration of the failure to take full advantage of the work of the associations is to be found in the specifications for the purchase of timber for treatment. Prior to the advent of timber preservation it was an almost universal practice to specify "heart grade" timbers since, without treatment, the heartwood is much more resistant to decay than the sap-wood, and experience had thoroughly established that an untreated heartwood timber lasts much longer than an untreated sapwood timber or one containing a large proportion of sapwood. Sapwood in general is just as strong as heartwood and its structure is such that the preservatives penetrate it much more readily than the heartwood. In general, therefore, the presence of heartwood is of no advantage in timber that is to be subjected to thorough preservative treatment. This fact has been given wide publicity and specific attention is directed to it in the Manual of the American Railway Engineering Association. Yet, in spite of this, some railroads still specify "heat grade" in the purchase of timber for preservative treatment and are thereby required to pay a higher price for their timber than would be the case if they eliminated this requirement. Furthermore, they are obtaining no return for the added expense which they incur in this way.

The railroads have made a large investment in the American Railway Engineering Association and the other technical associations of railway officers. But until they avail themselves more generally of the work which these associations have done they will not obtain the full benefit from their investment.

New Books

The Beginnings of the New York Central Railroad. A History. By Frank Walker Stevens. 408 *pages.* 6 *in. by* 9 *in. Bound in cloth. Published by G. P. Putnam's Sons, New York.*

The New York Central on April 17 celebrated its centennial with ceremony commensurately elaborate to the importance of such a momentous occasion. One of the features of the hundredth birthday so adequately observed was the publication of a book. The book is entitled "The Beginnings of the New York Central Railroad." It is exactly what its title identifies it as being, a history of the "beginnings," because it covers only that period of New York Central history from the granting of the charter of the Mohawk & Hudson by the New York legislature on April 17, 1826, to the union of the several independent lines between New York and Buffalo to form the original New York Central in 1853. There is a possibility, this reviewer understands, that a second volume may be forthcoming which will carry the story on from 1853. This, however, the present book does not do. It describes the merger of 1853 and there it abruptly stops. It does not even reach the point of telling how the New York Central combined with the Hudson River Railroad to become the New York Central & Hudson River, still less tell how this rapidly growing system

reached Chicago and gradually grew to be the great progressive and prosperous railroad system that it is today. The author was, therefore, well advised when he entitled his work as "The Beginnings of the New York Central Railroad."

The centennial that the New York Central celebrated on April 17, 1926, was the centennial of the granting of the charter of its oldest predecessor, the Mohawk & Hudson. This road extended only from Albany to Schenectady. It was 18.875 miles in length. It had inclined planes at each end so that only about 12 miles were operated with locomotives until in later years the planes were displaced and the two ends were rebuilt in new locations with grades permitting locomotive operation from one terminal to the other. The road was opened for operation on August 10, 1831, but operation was discontinued from December 31, 1831, until April 19, 1832. At first the road used both locomotives and horses. Its first locomotive was the famous De Witt Clinton, which was built at the West Point Foundry, New York, the third constructed at that plant. The locomotive was shipped in June, 1831. After a period devoted to experimental purposes, it made its first trip for the carriage of passengers in an exhibition excursion on August 9, 1831. Apparently the locomotive was not a great success. It seems to have been in active service only in 1831 and 1832. The present De Witt Clinton which has stood in the Grand Central Station, New York, and which was used in the centennial ceremonies in April is a replica which was built for the World's Fair at Chicago in 1893. Another early locomotive was the John Bull, an English built locomotive which after a short career was rebuilt. A third was the Experiment or Brother Jonathan, said to be the first locomotive ever built to have a leading or bogie truck. This also was a product of the West Point Foundry.

The Mohawk & Hudson was anything but prosperous. It owes its place in history not to its success as a business enterprise but to its priority in the New York Central and to the fact that it demonstrated to New York State the possibilities of steam locomotion. For 15 years its troubles and financial vicissitudes were great. However, in 1843 it received financial aid from the City of Albany and thereafter had improved fortunes, one reason for which was that the proceeds of municipal assistance were devoted to elimination of the inconvenient and costly inclined planes. In 1847 the name of the road was changed to the Albany & Schenectady.

The several other roads of the route between Albany and Buffalo had various degrees of financial success and the Utica & Schenectady and Syracuse & Utica were especially prosperous. It is very interesting to read, for instance, that they had operating ratios of only 35 to 40 per cent. A tabulation of the several roads is of interest. The Utica & Schenectady was opened for operation on August 1, 1836, and the Syracuse & Utica on July 3, 1839. The Auburn & Syracuse was opened in June, 1839 and the Auburn & Rochester was completed on November 4, 1841; in 1850 these two were consolidated to form the Rochester & Syracuse which built a new direct line between the two cities of its name, which was opened in 1853. The Tonawanda, which had been incorporated as early as 1832, completed mileage from Rochester to Batavia in May, 1837, and to Attica in December, 1842. In 1843, the Attica & Buffalo reached Buffalo and in 1850 consolidated with the Tonawanda to form the Buffalo & Rochester, which in turn built a new line from Batavia to Depew and then sold that part of the Buffalo & Attica between Depew and Attica. The Lockport & Niagara Falls, later the Buffalo, Lockport & Niagara Falls, was completed in 1838 from Lockport to Niagara Falls. It was sold in 1849, reorganized, but had not been completed to Rochester by the time of the merger in 1853. Another road was the Buffalo & Lockport, completed shortly after the merger. Of special interest also was the Schenectady & Troy, completed about November 1, 1842, largely an attempt on the part of Troy to compete with Albany as the gateway to the new west and always a trouble maker for the other links in the Hudson River—Buffalo route.

Now if this list is complicated, think what must have have been the problems of operating such a system as a through route. Each road had its separate management, its different standards of equipment; different charter privileges and widely separated degrees of financial success. Nevertheless, from an early period the route seems to have been looked upon as an entity and it apparently was because of the difficulties accompanying its operation as an entity that the several managements came together and merged into a new company known as the New York Central Railroad.

The book is written in a scholarly manner although it suffers in the respect that on account of the great amount of detailed information, great patience is required to read it. However, the author has partially compensated for this by summarizing certain of the important features. Of notable interest in this connection is his treatment of the privileges granted in the charters. Thus the Mohawk & Hudson was allowed to transport both passengers and freight on condition that its rates should not exceed the rates on the Erie Canal. The Utica & Syracuse could carry passengers but no freight until 1844 when it was allowed to carry freight only when navigation on the Canal was suspended and it had to pay tolls to the Canal on such freight. The Auburn & Syracuse could carry both passengers and freight but had to pay tolls to the Canal on the latter. The Syracuse & Utica could carry both but had to pay over tolls to the Canal during the navigation season. This meant, of course, that no through freight could be carried until the law of 1844 changed the charter of the Syracuse & Utica. In 1847 the Syracuse & Utica was allowed to carry freight all the year round but still had to pay the canal tolls. That the condition was still onerous was shown by the fact that freight receipts of this road in 1847 were less than one-fifth the passenger receipts. It was not until 1851 that a law was passed repealing the requirement for paying tolls and the question was even then not finally solved until after several more years of discussion.

A similarly interesting chapter deals with the through service. This was first made possible by the completion of the Buffalo & Attica in 1842-43. The several roads then established a schedule of a daily train each way with a time of 25 hours. This was an average speed of only 13 miles an hour but such was fast enough for operation over the strap rail used on the several roads. There was much discussion regarding the division of the fares, the Schenectady & Troy contentions causing special trouble. It was some time before equipment was run through but in 1848 a scheme was evolved whereby the Albany & Schenectady bought from the other roads, except the Schenectady & Troy the baggage, emigrant and mail cars for the through trains and supplied them to the other roads on a mileage rental basis.

"The Beginnings of the New York Central Railroad" is a praiseworthy contribution to railway history. It evidences most careful research and scholarly treatment and the New York Central management deserves commendation for having had the work done. The book, the reviewer is told, has not been offered for public sale but has been privately distributed to a selected list. One hopes that the distribution has been sufficiently wide so

that students will have access to its very valuable material. And finally one feature that especially deserves praise is the excellence of the printing. The volume is not in any way unusually elaborate but it is withal an excellent example of the printer's art. We hope that other volumes are to follow.

The Engineering Index, 1925. 792 pages, 7 in. by 9½ in. Bound in cloth. Published by the American Society of Mechanical Engineers, 29 West 39th Street, New York. Price $7, to members $6.

The Engineering Index published each year by the American Society of Mechanical Engineers has for years been considered a necessary reference book by those who wish to keep in touch with current engineering literature. It is invaluable in any engineering library, and a great convenience, because of its completeness, to those who have occasion to consult it only occasionally.

The first volume of the Index appeared in 1892 and it has been published annually since 1906. Up to 1918 it was prepared and published by the Engineering Magazine Company, but since that time by the American Society of Mechanical Engineers. This volume, numbering nearly 800 pages, includes some 18,000 items which appear in engineering and other technical publications. More than 3,000 of these items are cross-references. Many 1924 publications received too late for inclusion in the 1924 Engineering Index, as well as periodicals appearing in 1925, which were received as late as February 1, 1926, are included in this volume. In the preparation of the index, the staff of the society reviewed more than 1,200 periodicals, reports and other publications regularly received during the year by the Engineering Societies Library, New York. The railway field, both steam and electric, is, if anything, even more completely covered than in former editions. This department includes rolling stock, terminals, shops, signaling, track and yards, together with all phases of construction, maintenance and operation.

Books and Articles of Special Interest to Railroaders

(Compiled by Elizabeth Cullen, Reference Librarian, Bureau of Railway Economics, Washington, D. C.)

Books and Pamphlets

Bulletin No. 11, *Railway and Locomotive Historical Society.* Includes an article on the collection of historic locomotives at Purdue University, an article on a pioneer locomotive engineer, on the Jarrett and Palmer Special, notes on locomotive builders of Paterson, and other historical material. 44 p. Pub. by the Society, Brookline, Mass.

Periodical Articles

The Effect of the Development of Highways and of Highway Transport on Other Transportation Agencies, by Henry E. Riggs. General and specific instances of what competing motor bus transport has done to railway passenger traffic. Journal of the Western Society of Engineers, April 1926, p. 121-128.

Fast Freight Transportation Rebuilding the Business World. Part XIII. "Railroad transportation: The cornerstone of modern business stability." Executive's Magazine, June 5, 1926, p. 20, 30.

Locomotive Development on the Central Railroad of New Jersey, by Paul T. Warner. Part II, covering period 1896-date, and including pictures and material on floating equipment. Part I was noted in booklist of April 3. Baldwin Locomotives, July 1926, p. 2-25.

Maintenance and Depreciation of Airplanes and Engines, by Ernest W. Dichman. Contains estimates of costs per airplane-hour, and per passenger-mile. Author is Chief of Inspection, U. S. Army Air Service, McCook Field. Mechanical Engineering, June 1926, p. 574-577.

Letters to the Editor

Why Not Signal Single Track Before Adding Second Track

CLEVELAND, Ohio.

TO THE EDITOR:

With reference to an article in the issue of January 23, by C. A. Morse, entitled "Efficient Transportation Demands Modernization of Lines," which article was referred to by F. Lavis on page 980 in the issue of March 27. The article is reported as abstracted and, therefore, all of Mr. Morse's references to signaling may not be quoted; however, some statements made are quite significant and until corrected or explained will cause confusion and do harm to the possibilities of signaling.

I quote from the issue of January 23 as follows:

(A) "The use of heavy power is in the interest of economy and efficiency, but wherever it is possible to do so, the grade line and curves should be reduced before heavy power is installed. Putting on heavy power is attractive, as it seems at first glance to bring results with a comparatively small outlay, but in the end it is an expensive expedient if installed before grades are reduced, where grade reduction is practicable.

(B) "The installation of heavy power requires that the roadbed be widened, additional ballast and ties added, heavier rail provided, stronger bridges, longer turntables, longer stalls and pits installed in roundhouses and larger locomotive machine shops and boiler shops constructed. Furthermore in many cases by the time these temporary changes are completed a large portion of this expense may be thrown away when eventually the grades are reduced and longer engine districts established.

(C) "We see statements made to the effect that by electrifying a single track railroad, or by signaling a single track railroad, its capacity can be increased and the construction of second track deferred. Such statements are in line with the practice of putting heavy power on a single track railroad where there is a possibility of reducing the grade.

(D) "The thing to do when any single track railroad has reached the point where its traffic is heavy enough to cause material delays in getting trains over the line is to construct a second track (bearing in mind that a single track railroad is but half a railroad), and in so doing reducing the grades and curvatures to the minimum; then when the double track line approaches congestion, is the time to add the special signaling, electrification or other refinements by which one can keep traffic moving.

(E) "Time is the element that must be considered in these days, and whatever will save time will reduce the cost of operation. Two trains cannot pass on a single track; therefore, one of them must stop and go in on a siding. This means that unless the switches are interlocked so that they can be thrown by a towerman or operator, not only one stop but two additional stops to throw the switches, or three stops are made every time a train takes a siding. It also means that nine out of every ten trains have to wait on the siding for the superior train to pass. This is more time lost and the more dense the traffic the more time is spent on side tracks consuming fuel and wasting time."

Boiled down, the above quotations seem to reach five conclusions as follows:

1. Heavier power (used under conditions stated) is uneconomical.

2. The use of signals on single-track is in the same class with the uneconomical use of heavier power.

3. A single track railroad is only half a railroad.

4. Single track signaling should not be used, but instead a second main track should be built and then the double track signals or other refinements applied as needed.

5. Time saved is the essence; whatever will save time will reduce the cost of operation.

From the foregoing it seems fair to reach the conclusion that single track signaling is uneconomical and, no doubt, those who have read the article have understood that that conclusion was intended. Let us examine this a little. In the first place it is not clear what is meant by single track signaling. From the text it seems that a partial exception is made of interlocking signals at the ends of passing tracks where interlocked switches are conceded to save time. It then becomes a question of what kind of signals the author has in mind as being uneconomical on a single track railroad. It should also be remembered, when saying that a single track railroad is only half a railroad, that most single-track signaling is only half signaling, i.e., as usually installed, it alone cannot be used to operate the road and it is necessary to combine it with some other method of operation, but even at that it will more than pay its way in many cases. If the other one-half were applied to single track maybe the results would take our minds off of double track as the next move.

To make a long story short, in the present state of the art and science the proper signaling for almost any railroad includes interlocking signals in combination with manual, automatic or other blocking, depending on the track arrangement and nature of other conditions to be met. Where double track operation justifies itself, the same signaling may be used with very little loss. If properly done on single track the so-called dispatcher's system with written train orders and other details may be eliminated and trains can be run more safely and expeditiously by signal indication, just as is now being done on multiple track roads so signaled in some of the most congested terminals in the United States where their use is justified beyond dispute. If this is not conclusive let any skeptic try and devise any other scheme having equal safety, capacity and expedition and compare the annual cost of that scheme with that of the signal scheme. This is surely the test of economy. Compare the annual cost of the single track signal scheme of the Missouri Pacific between Kansas City and Osawatamie with any other arrangement, except a signal scheme, giving equal safety, capacity and expedition; or, compare the annual cost of the single track signaling scheme on the Illinois Central between Fulton, Paducah and Frogmoor with any other scheme of equal safety, facility and capacity. There are many other cases to compare and more coming.

With reference to the fourth conclusion that double track should be built and then signaled, it is not made clear why signaling is not recommended for single track, even though single track signaling may be proven of value far beyond the limits of operation usually considered possible on single track and still expedite train operation and increase capacity to such a degree that up to such limits the same ton-miles may be produced at less cost than on double track operation. (See "Signals Increase Track Capacity," page 840—*Railway Age*, March 20).

The fifth conclusion states that "Time saved is the essence, whatever will save time will reduce the cost of operation." This seems to conflict with some of the others. If No. 5 is correct, then it follows that single track signaling which saves sufficient time to justify its existence economically, is to be recommended.

The author does not make clear what is meant by material delays (See quotation "D" above) which he establishes as the breaking point in single track operation where double track should be built. However, by his own statement is it not true that if these material delays on single track are reduced, double tracking, etc., is not justified? Ordinarily it is a simple matter to do this with signaling and in many instances pay 25 per cent to 100 per cent on the investment. Just how much the return will be and the number of years ahead, based upon relative annual costs of operation, until double or more tracks can justify themselves depends upon the operating system in effect on the single track, the track layout and the annual cost of double track operation and the number and kind of trains, etc. The problem ordinarily is a different one from that involved in uneconomical grades and curvatures. These grades and curvatures may possibly be overcome by sufficient power, i.e., train speed and road capacity may be kept up with those of the competitor by using heavier or speedier power over them but at an operating cost greater than if grades were reduced, etc. But these things would not overcome the faults or fallacies or obsolescence in operating practices and rules as to the system of dispatching of trains or management in the use of tracks in handling traffic as these are still with us after grades and curvature have been reduced. These faults, etc. are overcome to a most unusual degree by proper signaling. Single track signaling of today has to do largely with overcoming the faults of operating practices and methods created by man, whereas the use of heavier power on grades and curvature or the reduction of grades and curvature has to do largely with overcoming the laws of nature. The two things obviously should not be confused.

B. J. SCHWENDT,
Assistant Signal Engineer, New York Central, Lines West

More Uniform Material Figures

BOSTON, MASS.

TO THE EDITOR:

The *Railway Age* of May 8, carries a letter from "A Stores Officer" entitled "Answering Mr. Tirrell." Toward the end this officer writes that "Uniform accounting is the first essential step in the direction of comparing the investments in material on different roads." In your May 15 issue you make the statement, "A uniform method of accounting for material is not used by the railways. The Purchasing and Stores division, the Association of Railway Accounting Officers and the Interstate Commerce Commission should co-operate in bringing it about."

The "Stores Officer" in his letter of May 8, and the writer appear to be in agreement on the necessity for uniformity in stores practices, differing only in methods to reach the result. In his article published in your April 24 issue the writer endeavored to indicate laxity by the aid of published official records. The May 8 letter of this stores officer indicated 10 definite irregularities in practices by the railroads.

The official classifications are designed to secure uniformity in accounting practices. Time, effort and money have been, and are being, spent by carriers and public utilities in preparing data for themselves and for regulatory bodies. To be of value, the data must be prepared under uniform rules; otherwise the figures are useless for comparative purposes. Uniformity is likewise essential in gaging excessive stock. Central control is a vital factor in eliminating surplus material.

Your "Stores Officer" has taken a forward step for the betterment of his profession. Discussion and constructive criticism are always helpful. May others join in the forward movement. Irregular practices brought to the attention of the forward-looking officers of the purchasing and stores departments of our railroads will be corrected. The present discussion should assist the committee of the National association to gain support for its constructive recommendations at coming conventions.

WILLIAM W. TIRRELL.

Engine Operation Standardized by Pressure Gages

Union Pacific experience in recent months with steam chest and back pressure gages on locomotives shows important fuel saving

AN unusual opportunity to standardize locomotive operation and save a large percentage of locomotive fuel has been developed recently on the Union Pacific by the use of steam chest and back pressure gages. About two years ago certain locomotive road tests were being conducted on this road at the request of W. M. Jeffers, general manager, under the direction of O. S. Jackson, superintendent of motive power, to determine fuel economies, which, though important, would at the best involve small percentages of gain. It was essential, therefore, to eliminate from the results admitted variations due to different performances of individual enginemen.

Back Pressure Initial Gage Applied on Engine 2867

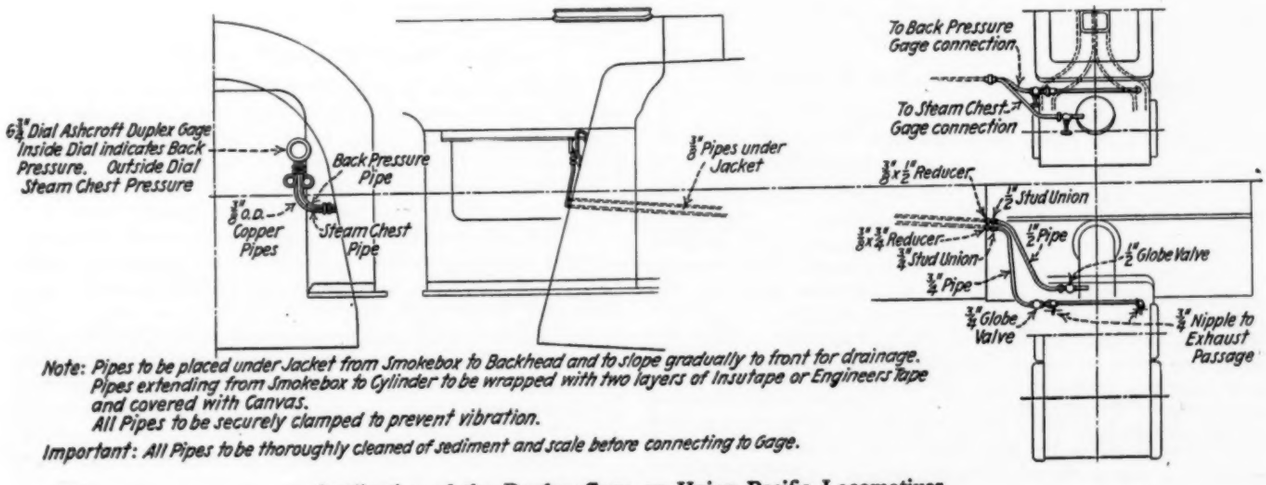
Preliminary data was collected in this field by making a careful record of the individual "habit," or system of operation, used by each engineman involved in these tests. Twelve test runs were made involving ten different enginemen on the same locomotive over the same division, with tonnage and other running conditions as nearly alike as possible.

On analyzing the results, it was found that the individual performance of one of these enginemen, when compared with the other nine as a group, showed a saving in fuel per thousand gross ton mile of 17 per cent. The tests also showed that in this group of nine enginemen there were individuals falling as much as 30 per cent below the best man. No suggestions were made during the tests, as it was desired to apply the measuring stick to the individuals as they were found operating locomotives according to their usual everyday practice. It is assumed that this picture represents average conditions.

These results led to a further series of tests, conducted for the sole purpose of developing to a wider extent just how much bearing this individual ability of different enginemen was having on the locomotive fuel situation. These additional tests were conducted in the following manner: The engineer of road tests would catch a regular freight run and carefully record fuel and water consumption, tonnage, speed, etc.—at the same time getting a practically continuous record of the degree of cutoff, and also the amount of back pressure and initial pressure, or throttle, as indicated by a special back pressure and initial pressure gage located in the cab for his purpose.

One Engineman Burned 45 Per Cent Excess Fuel

In each case the engineman was not aware that his performance was being measured; however, in the course of a few days he was again picked up by the engineer of road tests and caused to operate his engine in accordance with


6¼" Dial Ashcroft Duplex Gage Inside Dial indicates Back Pressure. Outside Dial Steam Chest Pressure
Back Pressure Pipe
⅜" o.d. Copper Pipes
Steam Chest Pipe
⅜" Pipes under Jacket
To Back Pressure Gage connection
To Steam Chest Gage connection
⅜" x ½" Reducer
½" Stud Union
⅜" x ¾" Reducer
¾" Stud Union
¾" Pipe
½" Pipe
½" Globe Valve
¾" Globe Valve
¾" Nipple to Exhaust Passage
Note: Pipes to be placed under Jacket from Smokebox to Backhead and to slope gradually to front for drainage.
Pipes extending from Smokebox to Cylinder to be wrapped with two layers of Insutape or Engineers Tape and covered with Canvas.
All Pipes to be securely clamped to prevent vibration.
Important: All Pipes to be thoroughly cleaned of sediment and scale before connecting to Gage.

Application of the Duplex Gage on Union Pacific Locomotives

prescribed methods, which consisted in a wide open throttle and reverse lever handled to give minimum back pressure consistent with speed and load. The results obtained were startling. One or two enginemen were found whose performance was such that it could scarcely be improved, while one individual engineman was found using as high as 45 per cent more fuel per 1,000 gross ton miles than was demonstrated by the test to be necessary—this wide range of individual performance being the result of the degree of skill, intuition, or habit possessed by the individual in operating his locomotive.

In the tests referred to, with the gage not in sight of the enginemen, they were asked to give their locomotive a wide-open throttle. It was found that in many cases what the engineman considered a wide open throttle was far short thereof, as shown on the initial steam pressure gage. It was also found that their ideas of the degree of cutoff being used were very hazy and indefinite due to the fact that it is practically impossible to mark a quadrant accurately for cutoff and keep this marking correct for any length of time, owing to changes in length of reach rod, removal and re-application of quadrants, etc., at shopping.

Duplex Initial and Back Pressure Gage Developed

The gages which led to obtaining this valuable data were afterward developed into a duplex pressure gage applied in the locomotive cab, one hand indicating the exhaust or back pressure and the other indicating the initial or steam chest pressure.

The steam locomotive operates at various cutoffs, which are critically important in economy of fuel. With full throttle there is one best and correct cutoff adjustment for each combination of speed and load, and it is necessary for the engineman to know this position or adjustment unerringly and conform to it at all times; otherwise, a large amount of fuel is wasted. Unfortunately, it is impossible for the average engineman to determine and practice this varying degree of cutoff because of the lack of one essential item of information.

The point of economic cutoff by which fuel is saved is known to depend upon the back pressure of the exhaust steam, and when a gage is located in front of the engineman to indicate this back pressure, and its variations, he is for the first time placed in possession of exact information and knowledge that enables him to operate the locomotive with prescribed economy. It is of equal importance that he be in possession at all times of knowledge concerning the initial or steam chest pressure carried; in other words, an additional pressure gage warning him if his throttle is not wide open.

These Duplex gages have been applied to Union Pacific locomotives in passenger and freight service as standard equipment.

Comments of Union Pacific Enginemen

The reaction of Union Pacific enginemen to the information which these gages furnish has been carefully studied, and the results have been remarkable. Here is the comment of a man who has had experience with the gages on both sides of the cab:

In reply to your request that I furnish a statement covering my experience on engines equipped with a duplex back pressure and steam chest gage. I will say that I have made one trip running and two trips firing on engines so equipped.

On the trip running, I had a 5,000 class engine. After the train was under way I set the reverse lever at what I thought was the proper cutoff; the gage showed a back pressure of 13 lb. and a steam chest pressure of 165 lb. I hooked the lever up two notches, the back pressure dropped to 8 lb. and the steam chest pressure built up to 190 lbs. without any reduction in speed of train. The rest of the trip over the district I worked the engine so as to maintain a back pressure of approximately 8 lb. and made the trip on less coal and water than I ever did before under similar conditions.

The two trips I made firing were on 7,000 class engines. The engines were worked so as to maintain a back pressure of approximately 6½ lb. and a steam chest pressure of about 185 lb., which resulted in a noticeable saving of coal and water over engines not equipped with this gage.

I think all our passenger and freight engines should be equipped with the duplex gage for it certainly will be a great fuel and water saver if properly used, and will be of great assistance to the engineer in helping him locate the proper cutoff.

Another engineman made the following comment:

I left Green River March 27, 1925, with engine 5080 and a full tonnage train. As soon as the train was fully started I opened the throttle until steam pressure showed between 185 and 190 lb. in the steam chest, and back pressure kept between 8 and 9 lb. by moving the reverse lever towards the center of the quadrant. After I got the train onto the hill, I moved the reverse lever one notch forward which caused the back pressure to build up to 20 lb. I could not notice any difference in the speed of train but engine began to use more coal and water.

After leaving Bryan and from there to Carter the grade is of a rolling nature and by keeping a full throttle and reverse lever to a point where back pressure was at 8 or 9 lb. the train was taken over knobs without waste of coal.

Between Carter and LeRoy (this being a steady upgrade) boiler pressure was kept at 200 lb., full throttle opening and the reverse lever moved towards the center of the quadrant until the back pressure hand showed 8 lb. The injector was cut down until it just supplied the boiler. I worked the engine this way for about five miles, then moved the reverse lever forward one notch causing the back pressure to build up to 20 lb. and went about five miles this way. Immediately the boiler began to lose water and use more coal but did not increase speed enough to be noticed. This I did for experimental purposes.

In my opinion if engines were equipped with these gages and engineers would work engines so that steam chest and back pressures were kept at the proper point it would result in a great saving of fuel.

A passenger engineman had the following to say:

I was on No. 2 with ten cars although I did not have a chance for making a thorough test as this time is slow, but I hung back for Bryan Hill to give this a good test for about six miles. I observed that I made good speed with full throttle and engine working in high cutoff, maintaining 185 lb. cylinder pressure and 8 lb. back pressure. I was working the water at about one and one-half gage in the boiler. I also experimented with the cutoff and could see that one notch at this time working engine wide open created enormous back pressure to about 18 to 20 lb. which I know was overworking the engine.

Now my opinion is that these gages will surely help the best of us engineers as well as the younger men if they will study the principle and work accordingly.

You have my full support in these pressure gages, and I will assist in any manner that I can.

Nine Important Benefits Derived

The following is a synopsis of the benefits which have been derived by the use of the duplex back pressure and steam chest pressure gages on Union Pacific locomotives, based on observation and reports:

1—Makes possible adjustment of the cutoff for minimum back pressure and highest fuel economy.

2—Makes it possible thus to adjust the cutoff independently of the reverse lever position on the quadrant, which heretofore has been very misleading, and in some cases damaging to the equipment.

3—Enables engineman to demonstrate quickly and forcefully in his own mind the harmful and wasteful effect produced by dropping the reverse lever even one or two notches below the correct working point as shown by the gage.

4—Makes it possible to determine when the throttle is wide open and full steam chest pressure established.

5—Enables the engineman to control properly the correct amount of steam entering the cylinders while drifting, heretofore, largely a matter of guesswork with uneconomical results.

6—Shows the harmful effect in carrying high water, indicated by a rise of the back pressure hand, due to the sudden reduction in temperature of the superheated steam.

7—Enables road foremen of engines, enginemen, and others, to determine if the engine is equipped with too small a nozzle, or if any changes have been made from the standard nozzle.

8—Immediately detects engines with restricted throttle opening or restricted steam pipe passages due to carbon deposits.

9—Indicates to the engineman any decided irregularity in valve setting and steam distribution.

The method employed in installing the gages and educating the men was as follows:

The engines on a given division were equipped with the special gages. While this was being done a special instruction car went over this division and all men were required to register and receive instructions by lecture and demonstration on the function and uses of the gage together with instructions on standardized operation of the locomotive by the use of these gages. Simultaneously tests were being made in order to determine the correct back pressure to be carried by each class of engine consistent with the schedule, speed and load on that division. The correct back pressures were then published by bulletin and the enginemen were required to work to these pressures or report inability to comply therewith.

Experience in the Union Pacific tests indicates that fuel economy increases as the percentage of cutoff decreases up to approximately the 25 per cent mark, and that higher degrees of cutoff do not result in further economy, while on the other hand the damaging results from high compression are at once apparent.

Certain tests were conducted for the express purpose of determining the compression pressure at high degrees of cutoff in passenger train operation, and it was found with the powerful Mountain type locomotive that as high as 350 lb. per sq. in. compression pressure was actually obtained, as a result of enginemen running with wide open throttle and reverse lever at or near the center. The results of such extreme pressures are well known in the disastrous effects produced on locomotive machinery.

Gages Give Enginemen Information They Need

By the system of operating locomotives as described above the engineman becomes a partner in the transaction of saving fuel in that he is provided with a fairly accurate means for using his own good judgment. These tests have demonstrated that the engineman's judgment is usually good and can be depended upon if he can at all times know the back pressure at which his locomotive is operating.

While it is recognized that there is one definite back pressure which, if maintained will produce the maximum horsepower of the locomotive. we should not overlook the additional fact that locomotives are operated at their maximum horsepower only a small proportion of their running time. The above mentioned tests developed that on passenger runs in certain territories, the economical back pressure, under the conditions, was 5½ lb. In certain mountain districts it was determined that 8 lb. maximum back pressure produced the highest economy consistent with the schedule and load. Therefore the necessity of allowing the engineman's judgment to play its proper part in economical locomotive operation must be apparent.

Experience on the Union Pacific shows that the proposal to regulate and standardize locomotive operation by means of back pressure and initial pressure gages is not one to be entered upon lightly or with a spirit of overestimation in the beginning. Very satisfactory and worthwhile economies are to be obtained, but only by patient and painstaking application to the problem and, most of all, by proper mechanical organization coupled with an educational program with the enginemen and the co-operation of all departments concerned. Organized testing, inspection and maintenance of the gages and their connections are essential.

The Statistical Unit of Man-Hours*

By H. D. Chamberlain
Auditor, Delaware & Hudson

IN planning an approach to a subject as broad and ramified as statistics, it immediately became apparent that any idea of exhausting it or dealing with it in all its aspects must be abandoned. I shall therefore deal only with certain general and perhaps more or less disconnected features that appeal to me as being of interest and susceptible to treatment on such an occasion as this.

During the past year I have several times encountered differences of opinion regarding, and what seemed to me to be mistaken conceptions with respect to, things statistical. I have gained the impression from some that they are outside the ordinary scope of an accounting officer. With others the thought seems to be present that a figure is not to be listed in a statistical category unless it is the *average* of something or other.

Undoubtedly the statistical phase of accounting work is of major importance. I would not attempt to evaluate it relatively, but I feel safe in saying that it ranks a close second to that which might be styled the auditing or protective phase.

If there is any misconception as to the line of demarcation between statistics and accounts, it would seem worth while to attempt to locate that line with some degree of definiteness. Practically all so-called financial statistics are produced by the accounts, and to a considerable extent, the accounts are given the shape and form in which we find them *in order that they may produce such statistics.* There is, of course, a certain major function performed by the accounts that is not statistical in character. It is that which I have already referred to as the protective phase,—that phase which covers the checking of cash receipts and disbursements, the collection and payment of outstanding accounts, the verification of assets and liabilities, etc. This might possibly be performed without producing anything that could be characterized as statistical.

It might be interesting to look at the definition of the word "statistics." I find the following:

"Numerical facts, collectively, pertaining to a body of things, especially when systematically gathered by direct enumeration and collated."

and

".....those facts that can be stated in numbers or in tables of numbers."

That is to say, any figure the number of which gives information of immediate or potential value of the earnings, expense, cost, etc., and gives the extent of any phase of operations, either financial or physical, is a statistical figure. Statistics may be absolute as well as average.

* Abstract of remarks made by Mr. Chamberlain in presenting report of Committee on Statistics, of which he was chairman, at annual meeting of Railway Accounting Officers' Association at Quebec, June 9 to 11.

The name is equally applicable to the number of tons one mile per mile of road per annum and to the amount of money spent for repairs to broken windows at fuel and water stations.

Limitations of Units in Dollars

I like to survey the operations for a series of years in order to determine the nature and effect of the general trends that produce the results experienced. In doing so, if I start with the income account, I find myself in trouble because of late years that compilation has been so violently affected by the fluctuating value of the dollar. I have seen numerous complicated equations by which it has been sought to eliminate the effect of such fluctuations, but none of these has appeared very satisfactory. The value of the dollar appears to have fluctuated in a very much different degree when considered as a part of revenue, than when considered as a part of expense. As a result it is a little difficult to determine, from the income account, whether or not, from a standpoint of the quality of operation, a property has been doing better or worse.

It thus seems desirable to discover suitable physical units by which we may concisely measure the production of the organization, and the effort expended in such production.

When we attempt to measure the *production* of transportation we may secure a very fair physical measurement. The revenue ton-mile tells us how much *freight* transportation we have sold, and the passenger mile tells us how much *passenger* transportation we have sold. There may be no basis of equation, universally acceptable for all purposes, by which these two dissimilar units may be added together; but for year to year comparisons of the operations of an individual road, it is not difficult to produce an empirical figure of equated traffic units that will give a reasonably satisfactory measurement. As revenue corresponds so directly to units of production, it is not difficult to secure analyses thereof that will answer almost any question that a student may wish to ask.

When we attempt to measure, in physical terms, the extent of *production effort*, we find an entirely different situation. There is no basis of equation of the numerous and varied physical units underlying a dollar of expense, that is even reasonably satisfactory for use in the computation of a figure that would tell us what the aggregate or composite production effort represents in physical terms. This lack represents a most important statistical deficiency. It would be of great value if it were possible to add together the number of units consumed of labor, coal, oil, ties, rail, iron, steel, lumber, etc., and determine the relation between such consumption and the quantity of transportation units produced.

There is, however, one element of major importance in all production effort that *may* be measured physically. It is labor. According to our experience, the cost of labor constitutes from 52 per cent to 63 per cent of the total operating expenses. It is thus an element of major importance. The two factors of labor cost are price and quantity. The managements cannot, perhaps, fully control the price, but they may, to a considerable degree, control the quantity, and it seems that here lies the greatest field for economy in railroad operation, and thus the most promising field for statistical inquiry.

In both maintenance of way and maintenance of equipment our experience is that the labor cost is from 50 per cent to 65 per cent of the total. Under a given standard of construction of fixed property and equipment, the *material* element of maintenance activity is fixed as to quantity. That is, to replace, in kind, a bridge, track, building, locomotive, or car, requires certain quantities of materials of certain kinds. The only unknown element in the probable material cost is the price. If the price cannot be controlled, the material element of maintenance activity cannot be controlled, but it is interesting to observe that, theoretically, it is not subject to reduction below the level produced by the price, except to the extent where material replacements are not in kind.

While, as stated, labor cannot, perhaps, be controlled as to price, it is by no means fixed as to quantity. The quantity may vary greatly accordingly as it is judiciously or injudiciously used. The result will be either more or less efficiency in maintenance, and thus labor will be the element of maintenance activity that is likely to be responsible for the general result, and the man-hour is the physical yard-stick of labor. For day to day or month to month activity reports and controls, it is interesting and informative to compute the man-hours of labor consumed per unit of material applied. This can be done with fair satisfaction with respect to rail, ties, ballast and other major material applied in the maintenance of fixed property. It is not quite so simple with respect to maintenance of equipment, but appropriate classifications of work can be made by which illuminating comparisons can be secured. For the purpose of general surveys, however, it will probably be found that maintenance activity is fairly responsive to traffic, and the number of man-hours consumed by maintenance in the production of a given number of traffic units will no doubt be an illuminating compilation.

In the Transportation Department the element of material cost, other than fuel, is inconsequential. Fuel is sufficiently important to justify much searching analysis, but I will not discuss that subject in this paper. The labor cost is from 60 per cent to 65 per cent of transportation expense, and about 80 per cent of transportation expense other than fuel. Transportation effort is customarily measured in terms of locomotive-miles, train-miles, car-miles, gross ton-miles, etc., or various complicated averages of these. In the last analysis, successful operation means the production of more revenue ton-miles at an expenditure or consumption of less man-hours. The relative fluctuations in locomotive-miles, train-miles, car-miles, etc., are merely indications of the means by which the final result is brought about.

Broadly speaking, man-hours will decrease relatively as wasted manual effort is eliminated. Wasted manual effort may be eliminated, of course, by close supervision, labor saving devices, tools, machinery, more powerful locomotives, larger cars, reduced grade and alinement, etc., and it is really for the purpose of eliminating or reducing man-hours or increasing man-hour production that these measures are usually taken. The effect of all these will be reflected sharply and definitely in the production of traffic units per man-hour consumed.

If, in making a comparison for a series of years, it is possible to say that the standard of maintenance was equally good and the service was equally satisfactory, and it has been ascertained that the production of traffic units per man-hour expended or consumed has increased or decreased, the conclusion would seem justified that labor had been efficiently or inefficiently used in the degree indicated; and as labor is the principal controllable element of operating expense, it would seem a fair conclusion that the property, as a whole, had been efficiently or inefficiently operated in the same degree.

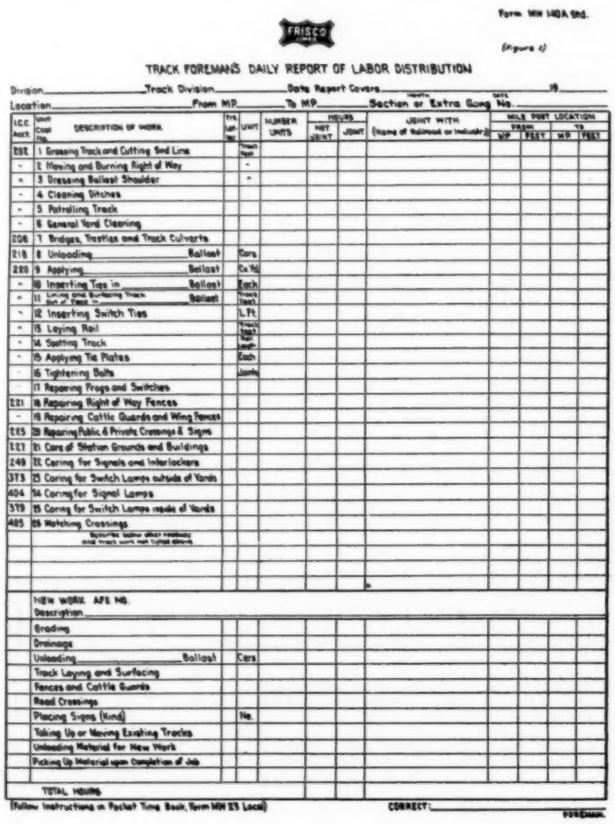
I believe it would be profitable for the roads to compute man-hours by operating expense accounts, both primary and general, and if I might presume to offer any advice to the railroad statistician, it would be: "Watch your man-hours."

Controlling Expenditures for Maintenance

St. Louis-San Francisco budgets expenditures, using daily check accounting plan

By B. D. Harsha
Division Accountant, St. Louis-San Francisco, Chaffee, Mo.

WHEN monthly expenditures for maintenance of way and structures are limited to a definite sum fixed by the chief operating officer, there arises the necessity of supplying the division superintendents, division engineers and roadmasters, with reliable, day-to-day or week-to-week statements of amounts expended as the month advances. To provide adequately for the needs of the St. Louis-San Francisco, there has been developed a set of daily reports on labor and material, which are



Form MW 140A 5M5.

(Figure 1)

TRACK FOREMANS DAILY REPORT OF LABOR DISTRIBUTION

Division _____ Track Division _____ Date Report Covers _____ Month _____ Year _____ 19__

Location _____ From MP _____ To MP _____ Section or Extra Gang No. _____

I.C.C. Acct.	Unit Cost No.	DESCRIPTION OF WORK	Tns. Lab. No.	UNIT	NUMBER UNITS	HOURS: Not Agent	HOURS: Joint	JOINT WITH (Name of Railroad or Industry)	MILE POST LOCATION: From MP	From FEET	To MP	To FEET
202		1 Grassing Track and Cutting End Line		Track Mile								
"		2 Mowing and Burning Right of Way		"								
"		3 Dressing Ballast Shoulder		"								
"		4 Cleaning Ditches										
"		5 Patrolling Track										
"		6 General Yard Cleaning										
206		7 Bridges, Trestles and Track Culverts										
218		8 Unloading Ballast		Cars								
220		9 Applying Ballast		Cu Yd								
"		10 Inserting Ties in Ballast		Each								
"		11 Lining and Surfacing Track Out of Face Ballast		Track Mile								
"		12 Inserting Switch Ties		L Ft								
"		13 Laying Rail		Track Mile								
"		14 Spotting Track		Move								
"		15 Applying Tie Plates		Each								
		16 Tightening Bolts		Joints								
		17 Repairing Frogs and Switches										
221		18 Repairing Right of Way Fences										
"		19 Repairing Cattle Guards and Wing Fences										
225		20 Repairing Public & Private Crossings & Signs										
227		21 Care of Station Grounds and Buildings										
249		22 Caring for Signals and Interlockers										
373		23 Caring for Switch Lamps outside of Yards										
404		24 Caring for Signal Lamps										
379		25 Caring for Switch Lamps inside of Yards										
485		26 Watching Crossings										
		Separate below other roadway and track work not listed above										
		NEW WORK AFE NO.										
		Description										
		Grading										
		Drainage										
		Unloading Ballast		Cars								
		Track Laying and Surfacing										
		Fences and Cattle Guards										
		Road Crossings										
		Placing Signs (Kind)		No.								
		Taking Up or Moving Existing Tracks										
		Unloading Material for New Work										
		Picking Up Material upon Completion of Job										
		TOTAL HOURS										

(Follow instructions in Pocket Time Book, Form MW 23 Local) CORRECT: _____ FOREMAN

Fig. 1

used not only for administrative purposes, but also for accounting purposes, and underlie the entries in the general books. Originally these reports were assembled in an accounting bureau, having jurisdiction corresponding to that of the general manager. This bureau gave place to divisional accounting bureaus under control of the auditor in the superintendent's office. The best results in providing the reports necessary for the control of expenditures for maintenance of way and structures have been secured under the latter plan of accounting.

From appropriations made, the vice-president first sets aside an amount deemed sufficient, in the light of past experience, to meet the overhead charges of superintendence, depreciation, injuries to persons, insurance, stationery and printing, all miscellaneous debits and credits, including those on account of property retirements, adjustments affecting maintenance in finally accounting for additions and betterments, and the joint facility accounts. From the remainder, which is distributed among the engineering, signal and telegraph departments, and the respective divisions and terminals, the chief engineer, signal supervisor, superintendent of telegraph, superintendents of divisions and superintendents of terminals are required to provide for all charges to the general account which are directly under their control, viz., labor, material, work train wages, work train fuel and other supplies for work trains, also contract labor and material when not incidental to addition and betterment work. Expenditures are made preponderantly on divisions and in terminals and this article deals only with the methods followed in controlling the expenditures made under the direction of the superintendents.

Labor Charges

Labor charges come from the distribution of the payrolls of the superintendent's staff, bridge and building and water service and track departments, the last of which subdivides between regular section gangs and extra gangs.

Both sections and extra gang foremen report the labor used daily on the labor distribution report (Fig. 1), on which they also record units of work done for those operations, which are fairly measurable on a unit basis. Hours and units thus reported are posted daily in the office of superintendent on the condensing sheet. An estimated average hourly rate is computed each week and applied to the hours posted on the condensing sheet, thereby producing approximate daily expenditures.

Bridge and building and water service foremen report the labor used daily on the labor and material report. Hours of labor so reported are extended thereon at the actual rates of pay to produce the actual daily expenditures.

Material Used Reported

Section and extra gang foremen report material used on daily material reports (Fig. 2), while bridge and building and water service foremen report the material used daily on the labor and material report previously mentioned. The original copies of both of these reports are forwarded directly to the division storekeeper for pricing and extension of the items of material listed thereon, with the exception of rails, ties and ballast for which separate stock accounts are kept in the general ledger. When the value of the material used is shown on these reports, they are forwarded to the division accountant,

who, with due allowance made for betterments in connection with other track material and for salvage recovered, computes the daily expenditures.

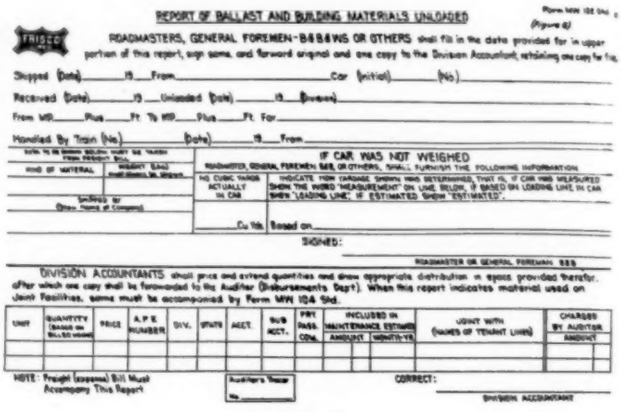
The quantity of ties used as reported by the track foremen is posted daily in the office of the division accountant. A unit price, varying for treated, white oak, red oak and switch ties, is applied to the quantities of ties reported used and so posted to produce the daily expenditure for this class of material which agrees, barring slight variations due to fractions in making extensions, with the reports made to the auditor at the close of the month for accounting purposes.

Rails laid and released reported by the track foremen are also posted daily under the supervision of the division accountant. He computes the daily expenditures for rails on the basis of average prices for rail laid, if new, and the fixed price for relay rail laid and released and scrap rail released, and with due consideration to betterments involved.

Ballast is issued from stock when reported unloaded. Section and extra gang foremen report ballast unloaded daily to roadmasters on the work train report, from which the latter officers issue the ballast unloading report (Fig. 3) for each car unloaded, and forward it, together with the supporting freight bill, to the division accountant who values the quantity shown used on the basis of the average price published monthly by the auditor. A separate average price is published for each individual vendor of ballast or for each ballast pit.

Requisitions for certain classes of material, such as tools and supplies, when filled by the division or general store, are priced and extended and forwarded to the division accountant who casts up the amount chargeable to maintenance therefrom and includes it in the daily report of expenditures.

Material expenditures, by sources for track territories and for the bridge and building and water service departments, are reported to the respective roadmasters and general foremen by the division accountant on the form entitled, "Daily Distribution of Track and Bridge and Building and Water Service Material" (Fig. 4). Superintendents and division engineers receive a copy of this report which is published for the first seven-day and first fourteen-day periods of the month and daily from the fifteenth to the close of each month. It shows not only the value of miscellaneous material by individual sections or gangs, but also the value of material drawn on requisition as well as the value of rails, ties and bal-



REPORT OF BALLAST AND BUILDING MATERIALS UNLOADED

Form MW 102 Std. (Figure 4)

FRISCO

ROADMASTERS, GENERAL FOREMEN-B&B&WS OR OTHERS shall fill in the data provided for in upper portion of this report, sign same, and forward original and one copy to the Division Accountant, retaining one copy for file.

Shipped (Date) ____ 19 ____ From ____ Car (Initial) ____ (No.) ____

Received (Date) ____ 19 ____ Unloaded (Date) ____ 19 ____ (Division) ____

From MP ____ Plus ____ Ft. To MP ____ Plus ____ Ft. For ____

Handled By Train (No.) ____ (Date) ____ 19 ____ From ____

KIND OF MATERIAL	WEIGHT (Less Inner Boards, Etc. Shown)	IF CAR WAS NOT WEIGHED: ROADMASTER, GENERAL FOREMEN, B&B, OR OTHERS, SHALL FURNISH THE FOLLOWING INFORMATION
		NO. CUBIC YARDS ACTUALLY IN CAR
Shipped by (Give Name of Company)		Cu. Yds. Based on ____

INDICATE HOW TONNAGE SHOWN WAS DETERMINED, THAT IS, IF CAR WAS WEIGHED SHOW THE WORD "MEASUREMENT" ON LINE BELOW, IF BASED ON LOADING LINE IN CAR SHOW "LOADING LINE", IF ESTIMATED SHOW "ESTIMATED".

SIGNED: ____

ROADMASTER OR GENERAL FOREMAN, B&B

DIVISION ACCOUNTANTS shall price and extend quantities and show appropriate distribution in space provided therefor, after which one copy shall be forwarded to the Auditor (Disbursements Dept). When this report indicates material used on Joint Facilities, same must be accompanied by Form MW 104 Std.

UNIT	QUANTITY (Basis on Billed Weight)	PRICE	A.F.E. NUMBER	DIV.	STATE	ACCT.	SUB ACCT.	PRY. PASS. CONV.	INCLUDED IN MAINTENANCE ESTIMATE AMOUNT	INCLUDED IN MAINTENANCE ESTIMATE MONTH-YR	JOINT WITH (Names of Tenant Lines)	CHARGED BY AUDITOR AMOUNT

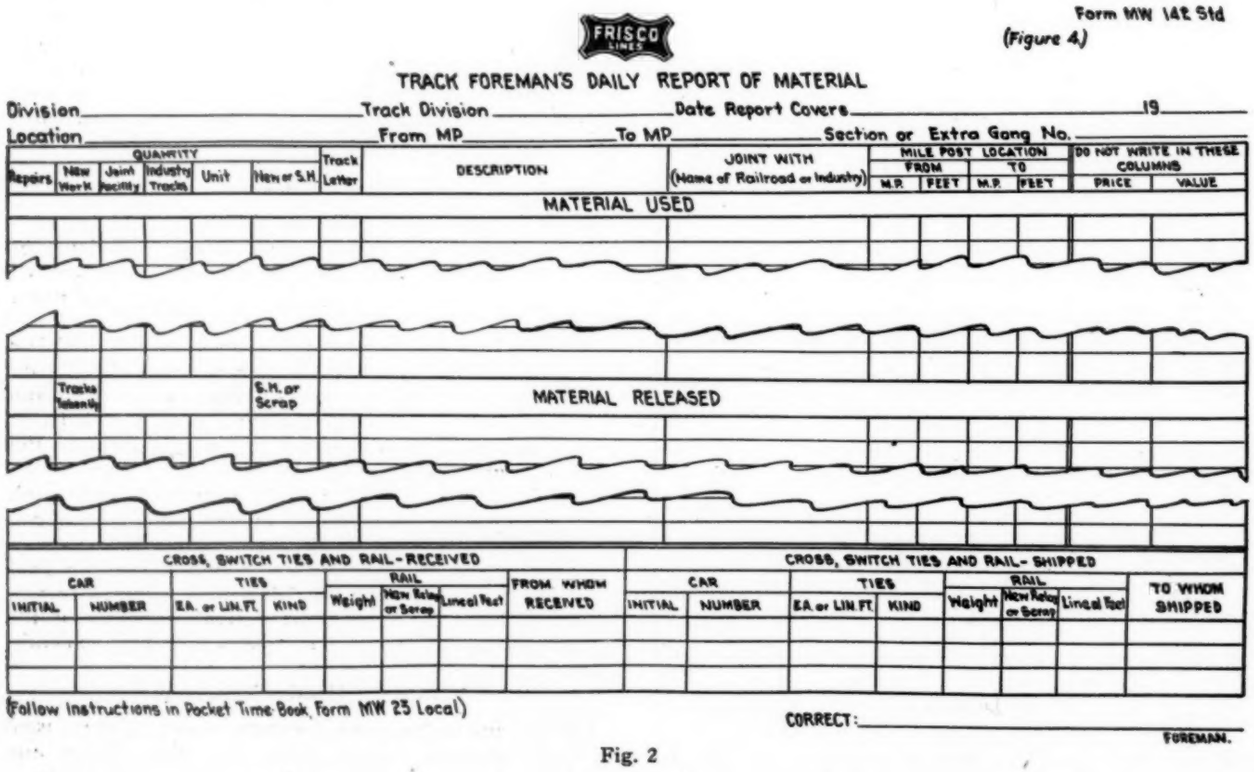
NOTE: Freight (expense) Bill Must Accompany This Report

Auditor's Voucher No. ____

CORRECT: ____

DIVISION ACCOUNTANT

Fig. 3



Form MW 142 Std

(Figure 4)

FRISCO LINES

TRACK FOREMAN'S DAILY REPORT OF MATERIAL

Division ____ Track Division ____ Date Report Covers ____ 19____

Location ____ From MP ____ To MP ____ Section or Extra Gang No. ____

QUANTITY: Repairs	New Work	Joint Facility	Industry Tracks	Unit	New or S.H.	Track Letter	DESCRIPTION	JOINT WITH (Name of Railroad or Industry)	MILE POST LOCATION: FROM M.P.	FROM FEET	TO M.P.	TO FEET	DO NOT WRITE IN THESE COLUMNS: PRICE	VALUE
MATERIAL USED														
	Tracks Taken Up				S.H. or Scrap		MATERIAL RELEASED							

CROSS, SWITCH TIES AND RAIL - RECEIVED: CAR INITIAL	CAR NUMBER	TIES EA. or LIN. FT.	TIES KIND	RAIL Weight	RAIL New Relay or Scrap	RAIL Lineal Feet	FROM WHOM RECEIVED

CROSS, SWITCH TIES AND RAIL - SHIPPED: CAR INITIAL	CAR NUMBER	TIES EA. or LIN. FT.	TIES KIND	RAIL Weight	RAIL New Relay or Scrap	RAIL Lineal Feet	TO WHOM SHIPPED

(Follow Instructions in Pocket Time Book, Form MW 23 Local)

CORRECT: ____

FOREMAN.

Fig. 2

last used for the entire territory of the roadmaster. The number and value of ties used by classes likewise appear, and in addition a summary showing the expenditures to date from the different sources, i.e., material, labor, work train and vouchers for contracted labor and material. The total of this is shown in comparison with the proportion of allowance, enabling an estimate to be made of over or under expenditures to date.

Trains engaged in work service are reported to the superintendent daily by the trainmaster on the work train report. Wages earned by enginemen and trainmen are inserted thereon by the timekeeper in the office of the superintendent, after which the reports are forwarded to the division accountant who computes the value of fuel, water and supplies consumed.

Contracted Labor and Material

Charges for contracted labor and material are computed by the division engineer and furnished to the division accountant daily. At the end of the month the division accountant prepares and submits a statement to the auditor showing the names of the individual contrac-

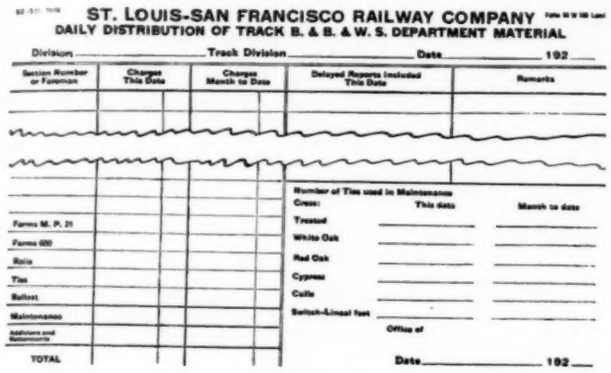

ST. LOUIS-SAN FRANCISCO RAILWAY COMPANY
DAILY DISTRIBUTION OF TRACK B. & B. & W. S. DEPARTMENT MATERIAL

Fig. 4

tors, the location and description of the work and the accounts to be charged. If for any reason any or all of the vouchers covering the expense involved cannot be included in the accounts for the current month, the auditor sets up an estimate of such expenses, which is permitted to stand until the vouchers are actually drawn. This practice has the effect of assigning the expense to the month in which it is incurred, rather than to the month in which it is accounted for, and applies the expense against the appropriation in the proper month.

Reporting Expenditures

Consolidated expenditures, by roadmasters' territories and sources of charge, are reported by the division accountant to the superintendent, division engineer and operating department statistician on a form entiled, "Maintenance of Way Expenditures—B. & O. and W. S. and Track Departments" (Fig. 5). This report is issued for the first 7-day and the first 14-day periods of the month and daily from the fifteenth to the close of the month. The report goes out not later than the third day following the period or date of expenditure and on some divisions the interval has been reduced to the second day following the period or date of expenditures. This report also shows the proportion of allowance available, the over-run or under-run, the proportion of time elapsed and the proportion of allowance spent.

From the reports issued by the division accountants, the operating department statistician compiles a consolidated statement as of the seventh, fourteenth, twenty-first and last day of each month, showing expenditures separately by divisions and sources for the information of the general manager and other general officers. Such consolidated figures are also published daily from the fifteenth to the close of each month. These consolidated statements are in the possession of the general manager on the fourth day following the close of the period or date of expenditure.

At the close of the month the auditor publishes a statement showing an analysis of actual expenditures by departments and divisions, and a comparison of the appropriations with the expenditures. The following table is a statement for a representative division for one month showing a difference of 0.14 per cent.

	Expenditures				Per cent	
Source	Estimated	Actual	Over	Under	Over	Under
Labor						
Superintendent's Staff...	$314.08	$314.08	.....	.....	...	...
B. & B. and W. S. Department	11,053.00	11,205.88	.....	$152.88	...	1.36
Track Department.....	34,138.00	33,919.91	$218.09	.....	0.64	...
Extra gangs.....	9,587.39	9,672.26	.....	84.87	...	0.88
Total labor.....	$55,092.47	$55,112.13	.....	$19.66	...	0.04
Material						
Miscellaneous material.	$30,966.93	$31,076.80	.....	$109.87	...	0.35
Rails	29,631.07	29,663.25	.....	32.18	...	0.11
Material released ext. relay projects.....	4,217.00*	4,217.00*	.....	.....	...	...
Betterments	11,807.32*	11,798.37*	$8.95*	.....	0.08	...
Ties	12,472.50	12,472.49	.01	.....	...	...
Ballast	1,981.31	1,988.19	.....	6.88	...	0.35
Miscellaneous material from general store..	1,262.52	1,260.41	2.11	.....	0.17	...
Total material.....	$60,290.01	$60,445.77	.....	$155.76	...	0.26
Work train						
Wages	$2,048.93	$2,048.93	.....	.....	...	...
Fuel and supply.....	1,366.32	1,366.32	.....	.....	...	...
Total work train....	$3,415.25	$3,415.25	.....	.....	...	...
Vouchers	$6,099.41	$6,099.41	.....	.....	...	...
Grand total.....	$124,897.14	$125,072.56	.....	$175.42	...	0.14

*Indicates credit.

5M 7-25—29498

FORM MW 76 STD.
SHEET ONE

MAINTENANCE OF WAY EXPENDITURES—BRIDGE & BUILDING & WATER SERVICE AND TRACK DEPARTMENTS

DIVISION_____ DATE_____ 19____

SOURCE OF CHARGE	ALLOWANCE				PERCENT	
	SPENT	AVAILABLE	OVER-RUN	UNDER-RUN	TIME ELAPSED	ALLOWANCE SPENT
TRACK DIVISION						
MATERIAL TO DATE						
LABOR TO DATE						
WORK TRAIN TO DATE						
CON'T VOUCHERS TO DATE						
TOTAL TO DATE						

Fig. 5

Motor Transport Investigation

WASHINGTON, D. C.

THE Interstate Commerce Commission has announced a series of hearings in connection with its investigation, No. 18,300, of motor bus and motor truck operation, to be held before Commissioners Esch and Aitchison and Examiner L. J. Flynn throughout July, August and September in the principal cities of the country. It has also issued a questionnaire addressed to the railroads calling for detail information. The schedule of hearings is as follows:

Chicago, July 27, 1926, at 9 a. m., standard time, in Great Northern Hotel, before Commissioner Esch and Examiner Flynn.

St. Paul, Minn., July 30, 1926, at 10 a. m., standard time, in United States Court Rooms, before Commissioner Esch and Examiner Flynn.

Portland, Ore., August 7, 1926, at 10 a. m., standard time, in Multnomah County Court Rooms, before Commissioner Aitchison and Examiner Flynn.

San Francisco, Calif., August 12, 1926, at 10 a. m., standard time, in Room 237, Merchants Exchange, before Commissioner Aitchison and Examiner Flynn.

Los Angeles, Calif., August 17, 1926, at 10 a. m., standard time, in Rooms of the California Railroad Commission—Sun Finance Building, before Examiner Flynn.

Denver, Colo., August 25, 1926, at 10 a. m., standard time, in Rooms of the Public Utilities Commission, before Examiner Flynn.

Detroit, Mich., September 1, 1926, at 9 a. m., standard time, in Hotel Statler, before Examiner Flynn.

Boston, Mass., September 8, 1926, at 9 a. m., standard time, in United States Court Rooms, before Commissioner Esch and Examiner Flynn.

New York, N. Y., September 10, 1926, at 9 a. m., standard time, in Merchants' Association Rooms, 233 Broadway, before Commissioner Esch and Examiner Flynn.

Asheville, N. C., September 15, 1926, at 11 a. m., standard time, in Battery Park Hotel, before Commissioner Esch and Examiner Flynn.

Dallas, Tex., September 20, 1926, at 10 a. m., standard time, in Jefferson Hotel, before Examiner Flynn.

Kansas City, Mo., September 24, 1926, at 10 a. m., standard time, in Chamber of Commerce Rooms, before Examiner Flynn.

Washington, D. C., September 29, 1926, at 10 a. m., standard time, in the offices of the commission, before Commissioner Esch and Examiner Flynn.

The questionnaire follows:

Give for each of the following operations the information indicated in the schedule A items referred to by numbers following the description of the operation. By line service is meant operations between points other than those within one terminal. The returns should be understood to relate to the transportation for hire of passengers or property. The returns should be submitted in the order of the schedule which follows and the reference number should be shown for each item.

A. Motor busses operated by respondent,
   1. In terminal service:
      a. In competition with respondent's rail operations. Items 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14 and 15.
      b. In competition with other common carriers. Items 1, 2, 3, 4, 5, 9, 10, 11, 12 and 15.
      c. Not in competition with common carriers. Items 1, 2, 3, 4, 5, 9, 10, 11, 12 and 15.
   2. In line service:
      a. In competition with respondent's rail operations. Items 1, 2, 3, 5, 6, 9, 10, 11, 12, 13, 14 and 15.
      b. In competition with other common carriers. Items 1, 2, 3, 5, 6, 9, 10, 11, 12 and 15.
      c. Not in competition with common carriers. Items 1, 2, 3, 5, 6, 9, 10, 11, 12 and 15.

B. Motor trucks operated by respondent,
   1. In terminal service:
      a. In competition with respondent's rail operations. Items 1, 2, 3, 4, 5, 9, 10, 11, 12, 13, 14 and 15.
      b. In competition with other common carriers. Items 1, 2, 3, 4, 5, 9, 10, 11, 12 and 15.
      c. Not in competition with common carriers. Items 1, 2, 3, 4, 5, 9, 10, 11, 12 and 15.
   2. In line service:
      a. In competition with respondent's rail operations. Items 1, 2, 3, 5, 6, 9, 10, 11, 12, 13, 14 and 15.
      b. In competition with other common carriers. Items 1, 2, 3, 5, 6, 9, 10, 11, 12 and 15.
      c. Not in competition with common carriers. Items 1, 2, 3, 5, 6, 9, 10, 11, 12 and 15.

C. Motor busses operated by subsidiaries,
   1. In terminal service:
      a. In connection with the respondent's rail operations. Items 1, 3, 4, 5, 7, 9, 11 and 12.
   2. In line service:
      a. In connection with the respondent's rail operations. Items 1, 3, 5, 6, 7, 9, 11 and 12.
      b. In competition with the respondent's rail operations. Items 1, 3, 5, 6, 7, 9, 11, 12, 13 and 14.
      c. In competition with other common carriers. Items 1, 3, 5, 6, 7, 9, 11 and 12.

D. Motor trucks operated by subsidiaries,
   1. In terminal service:
      a. In connection with the respondent's rail operations. Items 1, 3, 4, 5, 7, 9, 11 and 12.
   2. In line service:
      a. In connection with the respondent's rail operations. Items 1, 3, 5, 6, 7, 9, 11 and 12.
      b. In competition with the respondent's rail operations. Items 1, 3, 5, 6, 7, 9, 11, 13 and 14.
      c. In competition with other common carriers. Items 1, 3, 5, 6, 7, 9, 11 and 12.

E. Motor busses operated by other persons or individuals,
   1. In terminal service:
      a. In connection with the respondent's operations. Items 3, 4, 5 and 8.
   2. In line service:
      a. In connection with the respondent's operation. Items 3, 5, 6 and 8.
      b. In competition with the respondent's operations. Items 3, 5, 6, 8, 13 and 14.

F. Motor trucks operated by other persons or individuals,
   1. In terminal service:
      a. In connection with the respondent's operations. Items 3, 4, 5 and 8.
   2. In line service:
      a. In connection with the respondent's operations. Items 3, 5, 6 and 8.
      b. In competition with the respondent's operations. Items 3, 5, 6, 8, 13 and 14.

G. To what extent, if any, are motor busses and trucks regulated by state or municipal authorities in your territory?

H. Furnish any other information considered pertinent to this investigation.

SCHEDULE A.

1. Owned by respondent
   (a) Total number
   (b) Primary account in which cost is carried
2. Operated by respondent but not owned
   (a) Number owned by subsidiary
   (b) Number owned by others
   (c) Total number.
3. Total number operated.
4. Terminals in which service is operated.
5. Is service interstate or intrastate?
6. Points between which line service is operated and distances.
7. Name, address and how controlled.
8. Name and addresses of operator, indicating whether common carrier, contract carrier or other private carrier service.
9. Method of publishing rates, fares or charges.
   (a) Are they local, joint or proportional?
   (b) Are they filed with this commission? If so, cite tariffs.
   (c) Are they absorbed in whole or part? If so, cite tariffs.
   (d) Explain in full arrangements concerning through transportation in connection with rail or rail-and-water line.
10. In what primary accounts are revenues and expenses of the operations included?
11. Have the operations been profitable or unprofitable?
12. The general results of operation. Under this head enumerate the advantages and disadvantages developed by experience.
13. Give full information as to nature, extent, and effect of competition on traffic and revenues of reporting carrier.
14. Describe abandonment, if any, of rail lines because of such competition.
15. What consideration, if any, is respondent giving to the establishment of additional service?

Railway Accounting Officers Meet

Differences of opinion as to proposed revision of I. C. C. classification

THE Interstate Commerce Commission's proposed revision of its railway accounting classifications, which is still in tentative form but which the commission now hopes to make effective on January 1, 1927, was one of the principal topics considered at the thirty-eighth annual convention of the Railway Accounting Officers' Association, held at the Chateau Frontenac, Quebec, on June 8 to 10. The subject was discussed in the president's address, by W. C. Wishart, comptroller of the New York Central Lines, who presided, and more particularly in connection with the report of the Committee on General Accounts and the discussion of it on the floor and in a committee meeting preceding the sessions of the convention. It was also the subject of letters from Chairman Joseph B. Eastman of the Interstate Commerce Commission and Alexander Wylie, director of the commission's Bureau of Accounts. No representatives of the commission were present at the meeting because of a recent ruling of the Comptroller of the Treasury that the government cannot pay the expenses of the attendance of government officials at conventions of other than government organizations.

The attendance was the largest in the history of the association. In addition to the 365 who registered at the meetings there were members of families and guests that brought the total up to approximately 800.

On June 8, preceding the regular sessions of the convention meetings of the principal committees were held for the purpose of enabling members who were not on the committees to discuss features of the reports in advance and there was comparatively little discussion of most of the reports from the floor.

Following an invocation by Rev. Archdeacon Scott and addresses of welcome by Hon. Frank Carrel, M.L.C., on behalf of Premier Taschereau of Quebec and Valmont Martin, mayor of the city, George M. Shriver, vice-president of the Baltimore & Ohio, addressed the convention.

Mr. Shriver, in an interesting address gave an unusual tribute to the accounting officers and spoke of the great responsibilities devolving upon them. He also gave some estimates of the large amount of increased capital which it will be necessary for the railroads to raise in the near future, illustrating his remarks with the situation of the Baltimore & Ohio, which is called upon to expend approximately $9,000,000 as its half of the cost of grade separation on the 50 miles of line which it has in New York. This, he said, is almost as much as the present capital investment in the lines in question.

Mr. Shriver also referred to the recent meeting of accounting, traffic and legal officers of the carriers with representatives of the Interstate Commerce Commission regarding the questionnaire which the commission proposes to send out in connection with the general rate structure investigation under the Hoch-Smith resolution. He said it is the duty of the carriers to give the commission the best possible aid in getting a true picture of the rate structure and that much of the responsibility and work will fall on the shoulders of the accounting officers. He was satisfied that the commission is sincere in its effort to find the facts and do what is right and perhaps the result will be such, he said, that it will not find that material changes are necessary. He emphasized the importance of the study to be made and said that it presents an opportunity to aid the commission in protecting the rate situation.

An abstract of President Wishart's address discussing the work of the association follows:

President's Address

When the carrier companies came to be an important factor in our social, financial and economic affairs, the state stepped in and asserted its right to regulate them in the public interest. Regulation, in the early years, contrasted with that under which we live and move and have our troubles, was as a morning dew compared with a spring flood. It first took the form of merely requiring reports of a very general nature to be made to some of our states. Judging from the space given to various subjects, accidents seem to have been the object of chief concern in those old reports.

As a result of certain limitations, difficulties grew out of the effort of the states to regulate rates and practices particularly on traffic of an interstate character. The federal government assumed the responsibility on such traffic and in 1887 created the Interstate Commerce Commission as the authoritative body to carry out the will of Congress. This commission is now made up of eleven men who are said to be clothed with the greatest power on earth, counting as power the effect its orders may have upon business interests.

This commission has been a hard-working body of conscientious men. Throughout its life, which for a commission has been long, it has enjoyed a singular and commendable freedom from any charge that it was ever influenced in its acts or decisions by any motive other than a desire to discharge its duty impartially. It is humanly impossible for any small group of men personally to grasp and deal with the multitude of intricate details that come to those gentlemen. They must delegate to others the carrying of many of their burdens. Subordinates thus come to exercise reflected authority without the tempering and restraining influence of responsibility, and some of our most annoying demands frequently find their origin in the overzealous subordinate's interpretation of what the law requires or the commission really wants, and herein lies the reason why regulation tends to become more and more expensive.

Accounting Association 38 Years Old

Some thirty-eight years ago a group of railway accounting officers, in response to the very apparent need for uniform methods in stating their accounts, met in the city of Washington for an interchange of ideas, and out of this meeting grew the suggestion for the creation, a short time later, of the Railway Accounting Officers' Association, or The Association of American Railway Accounting Officers, as it was up to 1918.

A few of the gentlemen present at that first meeting are still members of this association, and I believe that two or three of them are with us today. What a wonderful development has been witnessed by those gentlemen during these thirty-eight years! And which one of them ever thought in 1888 that he would live to see the day when railroads would be subject to the present degree of regulation? But he may, if he can, find some comfort in the fact that the end is not yet. Whether he regards taking orders from general headquarters as a nuisance or a blessing, there has come about such a change in these years that the accounting officer generally is recognized as an executive, not a bookkeeper. The main difference is that he must accept responsibility and one of the purposes of this great association is to help

you fit yourself and keep you fit to discharge that obligation.

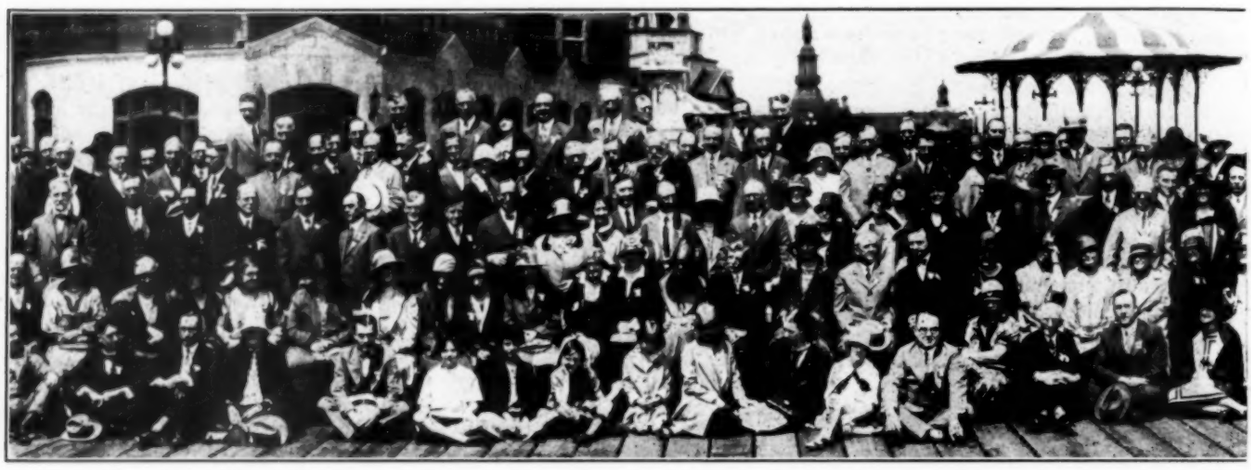
Aside from the fact that we are in good company and have a good time, what is there to justify the amount of time and work that we collectively give to the association? I sometimes think that those who are not so closely identified with our problems as we are fail to understand what there can be about what some regard as simple accounting to make it worth while for us to have these committee meetings and this well attended annual convention. But the problems are many and the accounting is not simple. A well ordered, smooth running machine may be the very essence of simplicity, but it took brains, time and experience to develop it. I am not one of those who believe that we know all there is to be known about our own work, nor that the machinery is so highly developed as to be regarded as admitting of no further development.

As far-reaching as the requirements of the Interstate Commerce Commission are, and as burdensome as some of us may find some of their requirements, the commission, under the law, has the power to prescribe in the most minute detail the forms and practices which the railways may use. That it has not exercised that power to its fullest extent may be due to the fact that the commission did not care to destroy wholly the profession of accounting by reducing it to a mere matter of following mandatory prescribed rules, and that it believes, in the light of its own experience, that the accounting officers individually and collectively would voluntarily take effective and adequate action in respect to such matters. The rules adopted by the association indicate conclusively that such a position on the part of the commission is fully justified so far as this association and the accounting officers are concerned.

This thought may be extended to other exacting requirements, the value of which some of us have come to question. If it suits my management, for example, to develop certain statistical units which can be used to advantage in handling our own affairs, it has never been clear why our neighbors should also be made to spend their money in compiling the same information which to them may be entirely useless. If my doctor thinks that a porous plaster would be beneficial in my own case, it does not follow that each of us here should be made to apply a similar remedy, if one is not needed.

After some years of experience, I have decided for myself that uniformity, as expressed in the law, will find its best interpretation if it is taken to mean a common language, with simple rules; that in statistics and accounting we shall have best results if we are only forced to keep such data as will meet the reasonable needs in the way of accurate information for those who are charged with the responsibility of regulating the utility in the public interest, so that the regulation may be applied in the light of knowledge as well as power.

Railway accounting is not an exact science. It has been described as an art. The distinction is fine, but it is there. All of us have been confronted with the difficulty of knowing just how to state a thing, and there is room for different opinions, though all may be influenced by a desire to adhere to the exact truth. Perhaps some of us strain at gnats and take on the camel with no great difficulty, but I know of no group of men that strives harder or more constantly to maintain an ideal of loyalty to a cause and fidelity to truth and duty.



Members and Guests at the 38th Annual Meeting of the Railway Accounting Officers Association

The Purpose of Uniformity

Not many years of early governmental supervision were required to demonstrate that the reports of the carriers, as first set up, were much reduced in value by the absence of any common understanding of the terms employed and by failure to adhere to uniform rules in their accounting practices. It was perhaps well enough for an individual railroad to set out its accounts in its own way so long as they were understood by its managers and owners, just as I may do in my own private affairs. But when other interests came in with a well-established and insistent claim for recognition, a different aspect was presented and there followed a general demand for better methods, for uniform accounting terminology for statistical statements which would admit of comparisons one with another.

May I say here that to my mind uniformity in accounting should be interpreted to mean "A conformity to one standard, operating equally on all." Not, if you please, in the matter of the forms or books to be used, nor the color of ink, nor whether the stenographer shall be a blonde or a brunette, but that we shall have a common language.

Any other interpretation, it seems to me, tends to stifle initiative and check development. Evolution comes from a natural tendency to vary from precedent and industrial progress is had only by allowing the imagination full play and the individual freedom to develop and adopt his worthwhile ideas.

I have reached the conclusion that when uniformity comes to be applied so that each of us must conform in all respects to an established and inflexible standard set by someone else, we shall inevitably enter upon a period when progress is no longer possible.

Accounting is a profession that demands more of a man than a mechanical knowledge of the rules of debit and credit. A machine-like application of certain set rules is not sufficient. Sometimes I think we err in the direction of having our rules carry too detailed instructions. The clear understanding of well defined principles founded upon a desire for fair dealing will make you a better man for your job than a blind adherence to a rule which may not be wholly applicable to the particular facts.

True accounting is comparable with the law in that it must function according to established and well recognized principles and in accordance with the ethics of the profession, not according to the dictates of those whose results are subject to accountability. To this end, it is a well recognized principle of railroad organization that the department which incurs expenses or creates revenues shall be separate from the department which audits expenditures and receipts.

Horse Sense Instead of a Micrometer

As in the law, also, we may easily be led into a morass of meticulous details. How many of us have not had to resist the well meaning efforts of those who would work out to a ridiculous nicety the cost of a service which at best can only be approximated! They would split off and subdivide and allocate and reassemble with the greatest precision, often losing sight of the fact that the primary and important division had been arbitrarily detached by guessing at it or assuming it. We cannot belittle cost statements. They are necessary, but we can sometimes, to our great advantage, use horse sense instead of a micrometer and get better results.

I have said that railway accounting is not an exact science. Under certain circumstances it can become the object of suspicion or distrust. It is an art that especially demands that faith which

comes only with the knowledge and conviction that the accounting officers are acting according to the ethics of the profession, to the best of their knowledge and belief, and not according to the domination or direction of others. It seems to me, gentlemen, that the accounting officer is called upon particularly to maintain that position which will entitle him always to the confidence, as nearly as may be possible, of two sides representing conflicting interests. And I am proud to say that I believe that the members of this association enjoy to an unusual degree such confidence all the time.

As accounting officers we have a peculiar duty. We are not to forget that we are also citizens. The industry with which we are identified has been subjected to more than its share of criticism. The citizen who has the best knowledge of the facts should strive to set his neighbors right in many cases involving the circulation of untruths or half-truths, which are sometimes worse.

The successful railway accounting officer must be human and know how to deal with people. The importance of establishing and maintaining a personal contact with the officers of other departments of the railway cannot be over-stressed, for surely the accounting officer who is unapproachable or coldly reserved will never be truly representative of his profession. There must be something wrong with the man that nobody calls by his first name. I recommend that you cultivate your neighbors in other departments. Maybe you can educate them on the new problems with which you must deal. They will come to know that an income tax statement is a problem comparable to the plans for a suspension bridge and that an accounting series circular can impose as much brain fag as a difficult law suit, or that a mandatory freight rule may bring about as much trouble as trying to pass two trains on a single main track.

During the year just past, the association has admitted 60 members and 40 have withdrawn, resigned, or died.

Your committees have been active in the discharge of their duties and the association is indebted to all of them for the time, zeal and real effort given to your affairs. Necessarily, in such an association as this, the primary work falls upon the members of the committees. It has been my pleasure to visit many of these committees while in session. The cheerfulness with which they approach their tasks and the real labor which they apply to their jobs is altogether commendable.

From some of the committee reports the subjects seem to take the nature of polishing up the language of rules or somewhat similar changes, and while it is probably necessary and desirable that all of the changes suggested be made, proper consideration should always be given to the confusion or misunderstanding which results from the more or less constant revision of our rules and forms, especially in view of the large number of employees who work under these rules or are affected by any changes and who cannot possibly keep in touch with the various alterations or the reasons which prompt them. Constant change does not necessarily represent progress and the temptation to make changes for minor reasons should be resisted.

Let me here pay my respects to the secretary of this association. Associations and annual conventions have come to be a part of the work among many classes of people who find themselves drawn together by a common interest. In no other way can they enjoy the exchange of ideas and that personal acquaintance which enables them the more smoothly to transact their business.

No association can accomplish much unless it has an efficient secretary. Having really enjoyed an acquaintance with our secretary for several years, it has not seemed to me other than highly appropriate each year to have our presidents pay him the compliments that they have. It falls to him to do the real work of the association and to give it that continuity of purpose that makes for success. I can cheerfully commend him as having continued throughout this year to meet every test to which a good secretary may reasonably be subjected.

Members and Guests at the 38th Annual Meeting of the Railway Accounting Officers Association

Letter from Commissioner Eastman

The letter from Chairman Eastman of the commission, dated June 5 and addressed to President Wishart, dealt almost entirely with the revised accounting classifications and was in the main a request for prompt action on the part of the Railway Accounting Officers' Association.

The letter was read to the convention and follows in full:

I appreciate very much your kind invitation to attend the Thirty-eighth Annual Meeting of the Railway Accounting Officers Association, and as usual I wish I could accept. That, however, is impossible, much to my regret. I regret even more to be obliged to inform you that this year representatives of our Bureaus of Accounts and Statistics cannot attend, owing to a ruling, quite beyond our control, by another department of the government. Next year I hope that this unfortunate situation may be corrected by legislation.

I have asked Director Wylie to advise me of matters which he thinks could with advantage be given consideration at your annual meeting, and I submit herewith the substance of his memorandum to me:

In accordance with the plans indicated in my memorandum to you of June 9, 1925, the revision in tentative form of operating revenues was submitted to the sub-committee of the Committee on General Accounts shortly after the annual meeting of the Railway Accounting Officers' Association at Atlantic City, in June, 1925. In addition to this classification the Classifications of Investment in Road and Equipment, Income and Profit and Loss have been in the hands of the sub-committee for a number of months.

The general balance sheet classification is ready to hand to the sub-committee just as soon as it is in position to handle it.

During the year the only classification which has been considered by the sub-committee with representatives of the commission is the Classification of Operating Revenues, and the consideration of this has been practically completed.

At a meeting held May 19-20, at Washington, the Committee on General Accounts considered the Classification of Operating Revenues. It also considered the Classifications of Income and of Profit and Loss Accounts without waiting until the sub-committee had given them consideration. In general the recommendations of the General Accounts Committee were constructive, and the greater part of their suggestions have been incorporated in the tentative draft of the classifications.

From the foregoing it will be noted that during the past year only a

small part of the work of reviewing the classification by the Railway Accounting Officers' Association has been accomplished. It is very important that the work of the committee in this connection be greatly speeded up if time be afforded after their work is completed to submit the classification, as has been the practice heretofore, to the state commissions for their suggestions or criticisms, and to produce them in form for the commission's order issuing them as of January 1, 1927.

Since the organization of the Railway Accounting Officers' Association the commission has recognized the benefits of the co-operation of that organization in the formulation of accounting rules. Inasmuch as it is very desirable that the revision of the classification now under way shall be completed at the earliest possible date, if the association and its committees will now arrange to deal with this revision work with the skill, diligence and dispatch which disinguished the aid afforded by the accounting officers in the preparation of the effective accounting rules, the benefits will accrue to all who have to do with accounts which are constructed under the new classification.

Without intending any criticism, for we know by experience the difficulty of the work and the delays which are brought about by conflict with other pressing tasks, I join in the hope expressed by Director Wylie that the review of the tentative revisions of the classifications may be accomplished at the earliest possible moment. Permit me, also, to wish for your association a most successful and enjoyable annual meeting in the charming old city of Quebec.

Discussion of the Revised Classifications

The letters from Chairman Eastman and Director Wylie indicated an apparent feeling that there had been some lack of complete co-operation on the part of the association with the work of its Bureau of Accounts in connection with tentative revision of the classifications, and strongly hinted that, in view of the lack of unanimity on the part of accounting officers, the commission, having the primary responsibility for prescribing classifications, is inclined to go ahead and prescribe the revised classifications without waiting much longer for recommendations from the association.

In a letter read at last year's convention Chairman Eastman had said that the work of revision had met with considerable delay, due in part to the difficulty in obtaining an expression of views from the association regarding changes suggested by the bureau, and suggesting that the commission might appreciate the expression of the differences of opinion existing among accounting officers more than it would an agreement reached only through a process of compromise and concession. Director Wylie had also stated that whereas the primary accounts now prescribed, with the exception of the depreciation accounts, were adopted with substantially full concurrence of the accounting officers, they were not at all unanimous in their opinions as to the form the revision of the classification of operating expenses should take.

Since the last meeting a sub-committee of the Committee on General Accounts, consisting of J. J. Ekin, G. E. Bissonet, W. E. Eppler, W. B. McKinstry and John Hurst, has been working in co-operation with the bureau and has recommended several changes in the tentative classifications submitted by it, but in the case of the proposed new classification of road and equipment investment accounts the sub-committee had formulated a complete substitute for the work of the bureau, which was approved by the Committee on General Accounts at the meeting in Washington in May and was included in Bulletin No. 111 which was not available for distribution at the convention.

There was a very lively discussion at the meeting of the Committee on General Accounts on June 8, which was attended by some not members of the committee, and some objection that the committee had adopted the report of its sub-committee recommending a proposed classification of investment in road and equipment accounts with scant consideration. Similar objection was made after the presentation of the report on the floor of the convention.

F. W. Sweney, comptroller of the Northern Pacific, and a member of the Committee on General Accounts, said that if it were proposed to have the committee's recommendations adopted and included in the annual report he would object, on the ground that it had not been presented to the membership sufficiently in advance of the meeting and that it was only proposed as a basis for negotiation. He also criticised the idea of having only three accounts for capital expenditures.

E. M. Thomas, comptroller of the Chesapeake & Ohio, chairman of the committee, replied, saying that no attempt was being made to get the approval of the association for the classification suggested by the committee but that it was to be printed as a bulletin, not as part of the annual report. However, he asserted, there is nothing to prevent a carrier from carrying its investment in road and equipment accounts in any detail it requires, but there is no reason why all roads should be required to keep their accounts in the same detail.

J. J. Ekin, comptroller of the Baltimore & Ohio, and chairman of the sub-committee on revision of the classifications, reviewed the work of the sub-committee in connection with the tentative classifications, saying both the committee and the sub-committee had devoted a great deal of time to the work, that it had progressed, and that the association, through its committee, had been active in the consideration of the revision.

President Wishart then stated that the report would be printed in the bulletin and made available to all members. The report of the Committee on General Accounts, covering 20 subjects, which had been printed in the Agenda, was adopted.

There appeared to be three classes of opinion among the accounting officers as to the form the revision should take. Many, particularly those from some of the larger roads, advocate a simple classification to be prescribed by the commission, containing comparatively few main accounts, but desire that each road be allowed to set up as many optional subdivisions as it considers advisable for its own purposes, on the ground that too rigid uniformity tends to stifle development in the art of accounting, and that a road which does not feel that it does not require so elaborate an accounting system as some other should not be required to. On the other hand, many carriers do not desire to have the present number of accounts reduced while some railway officers and particularly many engineers desire a classification that will provide more of the essentials of cost accounting.

Letter from Director Wylie

The letter from Director Wylie of the Bureau of Accounts which was read at the meeting of the Committee on General Accounts, was addressed to Mr. Wishart in reply to his letter of June 1 relative to the suggested form of the classification of Investment in Road and Equipment. Mr. Wylie said:

Your letter of the 1st instant relative to the suggested form of the Classification of Investment in Road and Equipment, has been received.

The responsibility for the preparation and promulgation of the accounting rules under the Interstate Commerce act being with the commission, the plan of procedure adopted in the preparation of the effective classifications was that the classifications in tentative form were first prepared in the offices of the commission. They were then submitted to the Committee on General Accounts of your association and frequent conferences were held and changes made in accordance with helpful suggestions from that committee or special sub-committees thereof.

You will doubtless recall that I stated to the Committee on

General Accounts at its last meeting that it was the intention of the commission to continue this plan of procedure and that the recommendations and suggestions from your association, its committees, or individual members thereof, would be received as being directed to the several classifications as they are promulgated in tentative form for suggestions and recommendations.

The proposed road and equipment rules submitted by the Committee on General Accounts will therefore be considered as relating to the tentative classifications which were submitted to the sub-committee of your association, and were *reproduced by it in the form as presented.* With the exception of comparatively few items, the rules proposed by your committee are taken from or conform to the rules as shown in the tentative draft of the commission. It is only the exceptional features that are therefore to be considered. These special features are in substance as follows:

(1) All expenditures to be classified under account 1, "Road," account 2, "Equipment," and account 3, "Investment suspense."

(2) Loss on fixed improvements retired and not replaced to be charged to operating expenses.

(3) Accounting for the replacement of fixed improvements to be upon the "betterment" basis.

(4) No charges to investment account for transporting construction material in transportation service trains.

In accordance with the plan which I understand it is the intention of the Committee on General Accounts to follow, the way will be open for further discussion of these four important particulars as the consideration of the tentative Classification of Investment in Road and Equipment progresses with the sub-committee, with the Committee on General Accounts, and with the association itself after all classifications have been put in a more nearly final form.

I trust that the foregoing will make entirely clear the situation with respect to this classification.

Bulletin No. 111

Bulletin No. 111, which was discussed but not distributed at the convention, contains the minutes of the meeting of the Committee on General Accounts held at Washington on May 19, 20, and 21, which was attended by representatives of the commission, and also as an appendix the Road and Equipment classification as submitted by the Interstate Commerce Commission representatives, the one suggested by the committee and the Income, Profit and Loss and Operating Revenue classifications submitted by the I. C. C. representatives. The committee recommended its proposed Road and Equipment classification for consideration by the representatives of the commission and the bulletin states that it is understood that the classification submitted by the commission's representatives will receive further consideration and discussion as between the committee and the commission's representatives. The committee also considered the tentative classification of Income Accounts and after offering several suggestions referred it to the sub-committee for conference with the I. C. C. representatives and further report to the committee. The same course was followed as to the classifications of Profit and Loss Accounts and of Operating Revenues.

A Letter from Secretary Mellon

Letters and telegrams were read from a number of retired members of the association who had participated in its organization and also one from A. W. Mellon, Secretary of the Treasury, and now also director general of railroads, who said in part:

"In a business as large and complicated as transportation, the duties of the accounting officers are necessarily of the utmost importance. While it is true that other departments of the railroads are charged with the responsibility of soliciting traffic and moving it expeditiously, the accounting officers must see that the carriers' revenues are fully safeguarded by the collection of proper transportation charges and where through movements are involved, that correct and accurate division of the through rates is made between the individual railroads. Careful and intelligent supervision of the expenditures of the carriers also imposes a heavy responsibility on the accounting officers.

"The federal valuation of the properties of the transportation systems and the recapture provisions of the Transportation Act emphasize the importance of uniformity and accuracy in the accounts of the railroads, not only from the viewpoint of the owners of the properties but also from the standpoint of the public interest as well.

"Although I shall not be able to avail myself of your kind invitation, L. J. Tracy, comptroller, will attend the meeting and represent the Railroad Administration. It is my desire that you have the fullest co-operation of the Railroad Administration and Mr. Tracy, I am sure, will be glad to assist you in any way possible."

R. M. Hudson, chief of the Division of Simplified Practices of the Department of Commerce, wrote expressing regret at his inability to be present and appreciation of the co-operation of the association in matters pertaining to simplified practice.

R. V. Taylor, of the Interstate Commerce Commission, a former member of the association, also wrote extending his heartiest good wishes and regretting his inability to attend the meeting. Mr. Taylor began his railway service in the accounting department and had the experience of stepping from the position of general auditor to that of general manager of the Mobile & Ohio.

Report of Committee on General Accounts

The Committee on General Accounts, E. M. Thomas, comptroller, Chesapeake & Ohio, had held three meetings during the year and reported on 20 subjects.

Revision of the I. C. C. Accounting Classifications.—The Sub-committee on Revision of the Classifications reported that there had been submitted to it a suggestion that a new account be inserted in the Classification of Operating Revenues under General Account 3, "Incidental," to include the revenues from heating and refrigeration service. The committee on general accounts expressed itself as being opposed to the creation of such a new account.

The sub-committee also reported that there had been submitted to it a suggestion that the water line accounts now appearing in the steam road classifications be merged into and made a part of the appropriate steam road accounts. The Committee on General Accounts expressed itself as being of the opinion that the water line accounts and the rail line accounts should be harmonized, but the separate classifications should be continued.

Schedule 531 in Annual Report to Interstate Commerce Commission.—The following is letter of June 25, 1925, from Dr. M. O. Lorenz, director, Bureau of Statistics, Interstate Commerce Commission, addressed to Chester E. Oliphant, assistant to comptroller, statistics, Chicago, Milwaukee & St. Paul:

I duly received your letter of May 7, in which you question the advisability of retaining item 161, average tons per car, in schedule 531 of the annual report form for steam roads because revenue ton-miles are divided by loaded car-miles, both revenue and non-revenue, and have delayed answering it until after the matter had been given some study.

When charted it appears that the average load per car as given in schedule 531, item 161, shows practically the same trend over a period of years as does the more correct figure obtained by including the non-revenue ton-miles in the dividend. Prior to 1915, only the revenue ton-miles are available and hence the average in question is the only one that can be given from 1901 to 1915. It seems worth while to retain it to preserve a comparable series. The annual report form shows the formula used in getting item 161 and also item 162, which shows the total ton-miles, revenue and non-revenue, divided by loaded freight car-miles, so that any one using the report can easily understand the matter. In reprinting these data in our publications or in your annual report to stockholders suitable explanation can be made. If we discontinued item 161 entirely, there would be great probability that comparison of the present item 162 would carelessly be made with the only figure given before 1915, involving considerable error.

For the above reasons I hesitate to recommend the elimination of item 161, but I will proceed to get the views of various persons before finally deciding the matter.

The sub-committee handling this subject (consisting of E. M. Thomas, *Chairman,* J. J. Ekin, L. R. Powell, Jr.) reported that at a joint meeting which it held with operating officers (representing the Operating Division, American Railway Association) Thursday, November 5, 1925, the joint meeting recommended the elimination of item 161, "Average Tons Per Car," in Schedule 531 of the Interstate Commerce Commission's Annual Report form, inasmuch as revenue ton-miles are divided by loaded car-miles, both revenue and non-revenue.

The Committee on General Accounts approved the report of the sub-committee.

Report of Committee on Freight Accounts

The Committee on Freight Accounts, W. S. Harrison, general auditor of revenues, Canadian National, chairman, had held three meetings during the year and submitted a report on 98 subjects, which was adopted.

Date on Which Interline Freight Reports are to be Rendered.—Referring to a letter submitted by W. S. Harrison, general auditor of revenues, Canadian National, the committee reported in part as follows:

Your committee recommends that no change be made in Freight Mandatory Rules 56 and 57.

If in considering this subject, your committee could eliminate all elements except the simplification of freight accounting and the reduction of freight accounting costs, the recommendation undoubtedly would be for an extended time limit of sufficient length to permit the holding of interline waybills until all of such waybills reported by receiving agents for given month had been received in the freight audit office. Such waybills could then be arranged for rate revision, divisions, and abstracting so as to effect material freight audit economies.

Waybills for like commodities between two given points via the same route could be sorted together. One reference to tariffs and divisions for the month would be made as against a daily reference under present practices.

Abstracts when opened would be completed, instead of being added to at intervals during the month, as at present.

More mechanical adding devices could be used on abstracting machine, reducing the cost of subsequent adding machine work.

A more economical plan of balancing would result and by no means least would be economies from initially correct accounting, impossible of attainment under present rush conditions.

The elements which cannot be eliminated (at least through recommendations of the Committee on Freight Accounts) are:

(a) The current accrual of freight revenues.

(b) The compilation of monthly revenue statistics for the Interstate Commerce Commission and for carriers' own use.

(c) The settlement of interline freight balances between carriers.

Possibly a majority of carriers report freight revenue accruals direct from interline freight accounts. So long as those accounts are the basis for initial accruals, the extension of the time limit for rendering interline freight settlements would necessitate estimating freight revenue beyond a point which would be considered sound.

An extension of time would, to the extent of the extension authorized, result under present practices in delaying collection and payments between carriers of many millions of dollars monthly.

Your committee has gone into this subject at some length with the thought that it might be one in which the association would be interested.

Extension of Through Interline Waybilling.—Referring to letters received from F. W. Pope, auditor freight accounts, Southern Pacific, and C. W. Crawford, chairman, general committee, Transportation Division, American Railway Association, the committee submitted the following:

The extension, curtailment, or to maintain the *status quo* of interline waybilling arrangements is one of the big problems of railway accounting, which has not been solved nor has a consistent policy to be followed generally by carriers been determined upon.

The question might be of sufficient importance to departments of railroads, other than accounting, to warrant incurring accounting costs in the protection of the revenues beyond those usually incurred in the audit of interline waybills and to even make such costs entirely secondary.

Prior to the period of federal control, the interline waybilling arrangements authorized were restricted to routes and traffic readily adaptable to such waybilling. The decided tendency at that time was to restrict such arrangements to traffic and between roads, most readily adaptable because of published through rates and adequate divisions, to audit office interline freight accounting.

During federal control the protection of individual carriers' revenues was not of prime importance so long as the correct transportation charges were assessed and collected from patrons. There was an absolute necessity for speeding up transportation and conserving man power. This largely influenced the establishment of universal interline waybilling between carriers operating in the United States.

At the end of federal control the corporations were not equipped with tariffs and divisions nor was there a personnel sufficiently expert in their application to adequately protect individual carriers' revenues, so most carriers then sought to restrict their interline waybilling arrangements to those which were authorized and economically operated prior to the period of federal control.

There has been a growth of transportation with changes in established transportation routes, and radical changes at large junction terminals; the latter in some instances entirely prohibited the rebilling of traffic. These conditions in some instances imposed on other departments of carriers' expenses exceeding those which would have been involved in the working out by the traffic department of through rates with proper percentage divisions or in the absence of those of establishing adequate accounting arrangements for the protection of individual carriers' revenues under interline waybilling.

Interline waybilling has been gradually extended since March 1st, 1920, as result of negotiations between carriers. Where such way billing by agreement is extended in the absence of through rates and divisions, the Committee on Freight Accounts is decidedly of the opinion that the following fundamentals are essential to a proper audit and accounting for the waybills:

(a) The carrier bringing the traffic to the junction point of interchange must revise the waybill as to weight, rate, and classification applicable to that point, verify the extension, and must certify to such revision by appropriate notation on the face of the interline waybill.

(b) The outbound carrier from the junction point of interchange must check the rate from that point to destination or must insert such rate if not then shown on the waybill.

The Committee on Freight Accounts of the Railway Accounting Officers' Association has had several subjects presented each year having to do with the general extension of interline waybilling arrangements, or the adoption of practically universal interline waybilling.

Your committee does not feel at this time that it should make a definite recommendation for or against universal interline waybilling, but it is the opinion of the committee that the salient facts about this subject should be presented to the Railway Accounting Officers' Association with the hope that this question would be given serious consideration and that there would be a sufficient crystallization of opinion to guide your Committee on Freight Accounts in some subsequent definite recommendations.

Some of the questions involved are the:

(1) Efficient operation, curtailment of congestions at large junction terminals, and effect upon operating costs.

(2) Efficient agency operation and effect upon agency operating costs.

(3) Better service to patrons through a reduction, at intermediate terminals, in transportation time.

(4) Effect upon an initially correct settlement of transportation charges between carriers and patrons.

(5) Effect upon overcharge claim and audit office adjustment costs.

(6) And the protection of the revenues of carriers in the route of transportation.

Your Committee on Freight Accounts has an appreciation of the fact that the first responsibility of accounting officers is the establishment of practices which will insure proper revenue accruals for service. With through rates and published divisions simple of application, such protection can be afforded with universal interline waybilling.

In the audit of interline waybills the accounting costs are increased in the ratio that there is a decrease in the number of through rates published, published divisions difficult of application, or the entire absence of divisions via the routes traffic actually moves. It is not impossible to establish practice which would protect the revenue of carriers on interline waybilling where through rates and divisions are not published, but such arrangements involve increased accounting costs and in some instances would necessitate the establishment of revision bureaus at some rate breaking junction points.

If the benefit to other departments of carriers from universal interline waybilling is greater than the increased accounting and other cost incident to the protection of carriers' revenue under such arrangements, your Committee on Freight Accounts would be prepared to offer definite recommendation as to the procedure to be followed to afford such protection.

The Committee on Car Service, Transportation Division, American Railway Association, at a very recent date adopted the following resolution:

Resolved, That the Committee on Car Service, in the interest of expeditious car movement, recommends interline through waybilling of all freight, and this should apply regardless of bases of rates or divisions or the absence of divisions.

The Railway Accounting Officers' Association, however, has never recommended the general extension of interline waybilling in the absence of through rates and percentage divisions.

It was the hope of the association that the traffic departments would by this time have made sufficient progress in the promulgation of joint through rates and the production of simple equitable percentage division bases for apportioning the revenue among the

interested carriers as would justify carriers in establishing complete interline waybilling except with those few carriers which, because of financial condition or otherwise, would make such waybilling undesirable.

Progress has been made by the traffic departments since March 1st, 1920, especially as regards through rates and percentage divisions on solely intra-territorial traffic. Very little has been accomplished on inter-territorial shipment.

Your Committee on Freight Accounts hopes for a full review of this subject by members of our Association and would appreciate expressions from accounting officers generally, through the medium of letters to be addressed to E. R. Woodson, Secretary.

Report of Committee on Passenger Accounts

The Committee on Passenger Accounts, S. C. Nichols, ticket auditor, Atchison, Topeka & Santa Fe, chairman, had held three meetings during the year and submitted a report on 45 subjects, which was adopted.

Definitions of Passenger Accounting Terms.—The committee recommended the adoption of a list of passenger accounting terms to appear as information in future issues of the Railway Accounting Procedure.

Simplification of Passenger Tariffs.—The committee recommended the adoption of the following:

Having given earnest consideration to this subject with respect to the manner in which fares are quoted, routes indicated and governing rules shown in joint one way and joint round trip passenger traffics as at present published by the several territorial passenger associations throughout the country, and being mindful of the considerable loss of revenue to the carriers through the erroneous quotations of fares as well as the needless loss of time and great labor involved in many cases, in the determining of correct fares, the committee recommended that the Association reaffirm the action taken at its Atlantic City meeting in June, 1925.

Improvement and Simplification of Ticket Forms.—In general the committee suggests that the question of improvement and simplification in ticket forms will furnish an unlimited field for the study of individual carriers, and believe that the possibilities of improvement and simplification have by no means been exhausted. It is the opinion that a free exchange of ideas and sample ticket forms, with individual study, should gradually bring about much improvement, which will be of benefit to ticket agents, conductors and audit officers.

Report of Committee on Disbursement Accounts

The Committee on Disbursement Accounts, J. T. Mahaney, assistant comptroller, Missouri-Kansas-Texas, chairman, had held three meetings during the year, and submitted a report, which was adopted, covering 32 subjects.

Accounting for Car Repairs.—American Railway Association Code of Rules (M. C. B.) Governing the Condition of and Repairs to Freight and Passenger Cars (Rule No. 7) provides that "original record of repairs" shall be made at the time and place where cars are repaired. This rule may have been construed by some carriers as requiring that "original record of repairs" should be made independently of "billing repair cards," but some carriers have considered that the "original record of repairs" and "billing repair cards" may be made at one writing.

Your committee has made a study in car repair yards where it is the practice to make the two records at one writing, and after considering the proposed plan from all angles, it is of the opinion that the plan is practical, that it meets all the requirements of the A. R. A. Rules and that it is more economical generally than the plan of making the two records separately.

When the two records are made at one writing, it is the practice to use a clip board or container which will hold the two sheets of paper constituting these records (and carbon sheet), the original of which is used as a billing repair card and the carbon copy as the "original record of repairs." The combination form may be so arranged that any particular information which the individual carriers desire may be shown on the "original record" portion of the form without incorporating the information in the "billing repair card." Colored paper forms may be provided to distinguish the records of repairs to home and foreign cars.

The plan of making the "original record of repairs" and "billing repair cards" at one writing contemplates that the form for making the "record" and "billing repair card" will be placed on the clip boards or in the containers in advance of the day's work and one or more of these holders distributed to each bad order car. The person authorized to inspect cars shopped for repairs will enter on the form all work authorized by him, using his judgment as to the number of vacant lines to be left after an item before another item of defects is written so as to allow a space for a full description of the material applied. Entries on the records will be made in the logical order for pricing in the billing office.

The economies to be effected by adopting the plan are as follows:

(a) Reduction in clerical forces by eliminating work of transcribing details of repairs from "original record of repairs" to "billing repair cards." The greater part of the reduction would be made where the work of transcribing is done in district or central offices or at large repair points where more than one clerk is employed in doing this and other Car Department clerical work. One carrier with approximately 2500 miles of road, which has adopted the plan and which formerly had the transcribing work done in a central office, reports an annual payroll saving of $13,000 through the adoption of this plan.

(b) Saving in stationery by the elimination of 30,000,000 sheets of billing repair card paper, which is approximately the number of repair cards issued annually by the carriers of the United States.

(c) Saving in correspondence and time required in various offices in verifying car initials and numbers. The majority of the mistakes in car initials and numbers are made in transcribing from "original record" to "billing repair card."

(d) Elimination of work of traveling inspectors in comparing the information on the "original record of repairs" with that shown on the "billing repair card."

It is the practice of one carrier which has adopted the plan of making two records at one writing to furnish gang foremen with a small colored paper gummed form to be pasted to "billing repair cards" for which it is thought defect cards should be obtained, or to call attention to anything unusual in connection with the repairs to cars which should receive the attention of general foremen.

It is the practice of the same carrier to hold in abeyance the billing repair cards for "wheels removed" until the cause thereof has been determined at wheel shop, where revision is made of the "billing repair card" to conform to the final inspection.

Your committee recommends these two practices in connection with the general subject of car repair accounting.

Gas Furnished to Rail Motor Buses.—On account of the increasing use of gasoline motor transportation, the committee recommended that the Interstate Commerce Commission be requested to give consideration to the subject of charging of the cost of gasoline to the end that it may be included in appropriate fuel accounts.

Standard Tracer Form to Be Used by Commerce and Industry.—Through a sub-committee, the committee has been studying the matter of recommending a tracer form, standard in size and arrangement, to be used by commerce and industry in tracing unpaid bills. On such a subject it is recognized that the co-operation of the various commercial and industrial associations and concerns would be indispensable; and as it develops that there is a possibility of the Division of Simplified Practice, Department of Commerce, calling a national conference on this subject, and thus securing the necessary co-operation among those interested, the committee recommended that the subject be continued on its docket.

Other Reports

The Committee on R.A.O.A. Overcharge and Agency Relief Claim Rules, R. M. Hunter, auditor overcharge claims, Chesapeake & Ohio, chairman, had held three meetings during the year and reported on 47 subjects. The committee requested that notice be given of a proposed amendment to the constitution for action at the 1927 convention, increasing the membership of the committee from 9 to 15.

Statistics

The Committee on Statistics, H. D. Chamberlain, auditor, Delaware & Hudson, chairman, submitted a description of statistical terms, units and phrases, compiled to furnish in convenient form for reference or education, information as to the names, sources, bases of computation, meaning and statistical value of various statistical units, absolute or average, original or derived. The committee considers this presentation to be a preliminary development that will take some time to complete, and recommended that it be printed as a separate section of the Railway Accounting Procedure. It was approved, although it will need to be harmonized in two or three particulars with the report of the Committee on Passenger Accounts. A letter was read from Mr. Chamberlain asking that the committee be assigned more definite functions specifically outlined and co-ordinated with the work of other committees. The letter also included an interesting paper on the subject of "Statistics" which was made a part of the record.

In place of the report of the Committee for Conference with the Railway Treasury Officers' Association, which had no matters assigned to it during the year, President J. T. Reid of the Railway Treasury Officers' Association addressed the meeting briefly and invited any of the accounting officers to attend the meeting of that association in September.

Brief reports were also submitted by the Executive Committee, the Committee on Conference with the American Association of Passenger Traffic Officers; the committee to attend the convention of the National Association of Railway & Utilities Commissioners, and the Special Committee on Water Line Accounting.

An amendment to the constitution was adopted making the Committee on Water Line Accounting a standing committee.

Officers Elected

Officers for the ensuing year were elected unanimously as follows: President, G. E. Bissonet, general auditor, Union Pacific System; first vice-president, E. H. Kemper, comptroller, Southern Railway sytem; second vice-president, Herbert W. Johnson, comptroller, Chicago, Burlington & Quincy; and secretary, E. R. Woodson, Washington, D. C. (re-elected). The following were also elected members of the executive committee for a two-year term: J. J. Ekin, comptroller, Baltimore & Ohio; E. A. Stockton, comptroller, Pennsylvania; and W. E. Eppler, comptroller, Delaware & Hudson. It was decided to hold the next annual meeting at Denver, Colo., in June, 1927.

Entertainment

A large number of those attending the convention traveled to Quebec in special trains via the Canadian National from Chicago and via the Delaware & Hudson and Canadian Pacific from New York, including a boat trip on Lake George and Lake Champlain. A complimentary luncheon was tendered on June 8 by the Canadian Pacific Steamships on board the Royal Mail S.S. "Empress of France" at Quebec, which was attended by 760, and the Quebec Railway Light, Heat & Power Company provided special cars for a trip to points of interest around Quebec. Members of the association and their wives were also the guests of Sir Henry W. Thornton, president of the Canadian National, at a luncheon on June 9, and of E. W. Beatty, president of the Canadian Pacific, at a dinner on June 10.

Several interesting sight-seeing trips around Quebec were arranged for the ladies and the entire party was received by the governor of Quebec on June 9 at Spencer Wood, the historic residence of the governors of the province. Following the convention many of the party were the guests of the Canadian National on a special train trip to the Lake St. John and Chicoutimi districts, while many others accepted the invitation of the Canadian Steamship Lines for a trip down the St. Lawrence river and up the Saguenay river.

The Delaware & Hudson Company Athletic Association Glee Club gave an entertainment in the convention hall on the evening of June 9, and there was a band concert the following evening by the Twenty-second Regimental Band.

Freight Car Loading

WASHINGTON, D. C.

REVENUE freight car loading in the week ended June 5, which included the Memorial Day holiday, amounted to 945,964 cars, a decrease of 52,279 cars as compared with the corresponding week of last year but an increase of 35,171 cars as compared with 1924. The holiday was not included in the corresponding weeks of those two years. All districts except the Pocahontas showed decreases as compared with last year and all classes of commodities except coal and coke. The summary, as compiled by the Car Service Division of the American Railway Association, follows:

REVENUE FREIGHT CAR LOADINGS—WEEK ENDED SATURDAY, JUNE 5, 1926

Districts	1926	1925	1924
Eastern	219,591	234,715	216,189
Allegheny	190,649	199,178	187,821
Pocahontas	54,969	51,808	40,670
Southern	140,704	144,198	126,256
Northwestern	147,292	160,178	148,359
Central Western	125,072	133,271	134,808
Southwestern	67,687	74,895	56,690
Total Western districts	340,051	368,344	339,857
Total all roads	945,964	998,243	910,793
Commodities			
Grain and grain products	36,928	38,163	39,145
Live stock	25,521	27,317	30,877
Coal	155,094	153,217	143,350
Coke	11,555	9,214	7,916
Forest products	70,693	77,809	69,423
Ore	62,926	66,237	60,828
Mdse. L.C.L.	235,254	258,894	241,304
Miscellaneous	347,993	367,392	317,950
June 5	945,964	998,243	910,793
May 29	1,081,164	913,087	820,551
May 22	1,039,385	987,306	918,224
May 15	1,030,162	985,879	913,201
May 8	996,527	983,034	908,203
Cumulative total 23 weeks	21,870,278	21,360,861	20,470,763

Car Loading in Canada

Revenue car loadings at stations in Canada for the week ended June 5 totalled 61,587 cars, an increase over the previous week of 4,147 cars, the largest increases being in merchandise, and miscellaneous freight. Compared with the same week last year the increase amounted to 11,969 cars.

	Total for Canada			Cumulative totals to date	
Commodities	June 5, 1926	May 29, 1926	June 6, 1925	1925	1925
Grain and grain products	7,216	7,610	4,248	155,349	132,524
Live stock	1,793	1,752	1,956	44,243	48,404
Coal	5,902	5,978	1,684	100,785	80,513
Coke	299	208	222	9,332	6,414
Lumber	3,903	3,641	4,349	75,112	73,494
Pulpwood	1,943	2,014	2,010	70,069	69,506
Pulp and paper	2,388	2,464	2,011	56,303	46,644
Other forest products	3,253	2,593	2,624	74,710	66,484
Ore	1,882	1,981	1,661	33,287	27,532
Merchandise, L.C.L.	16,782	14,905	15,635	344,326	327,558
Miscellaneous	16,226	14,294	13,218	275,215	244,286
Total cars loaded	61,587	57,440	49,618	1,238,731	1,123,359
Total cars received from connections	30,631	37,675	30,878	818,544	735,441

More Attention to Maintenance Labor Will Yield Results*

Selection, Education and Systematic Weeding of Men Essential to Efficiency in Maintenance

By C. E. Johnston,
Vice-President and General Manager, Kansas City Southern

THE item of labor is one of our largest items of cost. How do we select our men and what tests are they given to determine their physical, mental and moral strength or weakness? We must agree without hesitation that men vary in these capacities to the same or a greater degree than materials vary in strength. What will be the result, figuratively speaking, if a rotten tie or several rotten ties are thrown together under a panel of track? The answer is obvious. What will be the result of the use of bad cement in a bridge pier, and so on? Apply this to your organization—what is the result of employing men physically, mentally or morally unfit to withstand the load or strain required of them? You men will know the answer. Its retrogression—disintegration—stagnation. Its tendencies are disorganization and resultant losses in every way. There is no way in which it may be justified.

We must admit the weakness in past methods of employment and perhaps our present methods will not bear close scrutiny. May I suggest three ways to improve the character of the personnel—employ a better class of men; educate those kept and discharge the vicious and incompetent. If there is any difference in relative importance of these measures, I am of the opinion that we should lay emphasis on the last.

Railroad employment is to a marked degree regarded as a protected service. Once a man's name gets on the payroll he is hedged about by constant and numerous artificial restraints, as a permanent fixture. In gardening it is not sufficient that the soil be good and well sustained by fertilizer, and the seed the best. The resulting crop depends largely upon cultivation and weeding. Similarly in railroad service, the careful selection of men, their education and, above all, the systematic and unwearied weeding are essential. Know your men, and eliminate at once those who from whatever cause are palpable misfits.

Railroads should adopt schedules of their labor requirements; the number of officers authorized to receive applications and employ men should be reduced to a minimum, and the employment records kept by these officers should be systematically inspected at reasonably short intervals by some superior authority, or duplicates sent to some central office where they may be examined and checked.

Systematic Employment Methods

So far as possible, men in maintenance work should be employed from those living along the line of road, and the local foreman or agent should be the principal recruiting officer. Their moral character, physical fitness, mental capacity and education and past record should be rigidly examined. Only the best and most suitable should be employed.

Perhaps if I should outline briefly some of our objectives on the Kansas City Southern you may better understand our ideas of improvement in the employment, education and care of employees in the maintenance department. Our organization is departmental. The maintenance of way and engineering departments are in charge of the chief engineer, who reports direct to the vice-president and general manager. Our division engineers have charge of maintenance of way work and report direct to the chief engineer and our roadmasters report to the division engineers. We undertake to educate engineers in maintenance work before promoting them to the position of division engineer. One of our requirements of a division engineer is that he must have had at least two years' experience as a roadmaster.

Maintenance Meetings Stimulate Interest

Particularly since the end of federal control we have intensely studied our labor problem, not only in the maintenance of way department but in other departments. We have organized and have functioning to the fullest extent a separate personnel department in charge of a superintendent of personnel who reports to the vice-president and general manager. Through this organization we are able to accomplish many important things, such as the maintenance of an accurate personal record, the close supervision of employment, the supervision of welfare and safety work, group insurance, a connection between employees and the hospital association, and supervised recreation. We are strong believers of "knowing your men" and in this respect have arranged for monthly meetings and for our maintenance of way foremen to attend them. With this of course was a program designed to hold their interest and to draw out discussion. You would enjoy seeing some of our section foremen perform at these meetings which we still hold and which appear to be getting better all the time.

The chief engineer is permanent chairman of these meetings and makes it his business to attend. With him go many others such as the office engineer, bridge engineer, signal engineer, architect, division engineers, assistant engineers, roadmasters, inspectors, superintendent of telegraph, superintendent of personnel, personnel supervisors and the supervisor of safety. Officers in other departments are invited to attend when convenient and we usually have some there.

The foremen are urged to participate in the discussion of the various papers, as well as in the preparation of

* From an address presented before the Maintenance of Way Club of Chicago on May 19.

papers. Stenographic notes are taken of all discussions which are shown verbatim in a monthly maintenance of way bulletin issued in the interest of employees in that department. Foremen are allowed full time for the days spent in attending these meetings and are also given their meals while away from home.

We get wonderful results from these meetings and we find that they broaden the viewpoint of these men and their acquaintanceship to such an extent that there appears to be no time for waving a red flag. Also, perhaps you may recall the old saying, "Like father, like son"—"Like foreman, like men." We have found by experience that once the foreman is "right" one need not fear the mental attitude of the men under him after a sufficient time has elapsed to develop such a condition. This, I think, is the one great benefit we derive from our organized effort to bring these men together.

I say organized because it is so. We think it must be so. I mean by this, that we believe it is of sufficient importance to make it our business to keep it alive and functioning, and we are spending our time and money to that end. There appears to be no half-way ground and we do not propose to have that mistake chalked up against us.

We Should be Willing to Fight for Our Foremen

Another important consideration is the treatment of our maintenance of way foremen. We also make this our business and are spending time and money at it simply because it's worth it and we get a large return in more ways than one. I am assuming that you have the same wholesome respect for your foremen that we have.

I know you will agree that maintenance foremen as a rule have other men backed off the board when it comes to downright loyalty and service. Why then should we not be willing to fight for them at every turn in the road?

It is essential to our success, if we are to succeed in this game of railroading, to have the full support of our men. We cannot hope to receive the full measure of success in our undertakings unless the men under us render assistance. I say assistance and I mean men who will go the limit for us in anything we start.

Then why, in all fairness to these men who have confidence in us and who are more than willing to give their all in service, should we not give more consideration for those things that mean so much to them as a rule, and so little in comparison for us to help them get. Most of these men are satisfied and contented to have a living wage and a comfortable home where they can properly rear their families, educate their children and be duly protected against misfortune or old age. On the Kansas City Southern we are striving very hard to attain this goal. In almost every instance we furnish a comfortable section house and undertake to so maintain it; we have placed in effect differential rates for the purpose of balancing the differences between the various classes of work. For instance, we have as a basic rate that paid on an outlying section with living quarters furnished. We pay more for outlying sections with no living quarters in order to help compensate the foreman for the rent necessary for him to pay. We also pay more for yard sections, due to the higher class of work required. In other words, a foreman in a large yard, without living quarters furnished, is paid the maximum rate. We undertake to maintain these same principles with respect to our bridge and building and other maintenance foremen.

We are not half through with this process of betterment nor have we worked out all of our thoughts. As a matter of fact, we have just started, but the start made to date seems to prove the worth of the struggle. We are at present planning the construction of an outfit for a pile driver crew. This will consist of seven cars as follows: a foreman's car, with toilet, bath, steam heat and electric lights; a kitchen and dining car, with electric lights and steam heat; two sleeping cars with steam heat and electric lights; a recreation car with seats and tables in one end and toilets and shower baths in the other end, and with steam heat, electric lights and hot water; a tool and supply car and a water car. This, when completed, will be the first outfit of this kind on our railroad. The cars will have steel underframes and otherwise be made strong and equal to the service required of them in making prompt and safe trips over the road. The lighting system will be a Delco plant; the steam heat will be provided by an Arcola furnace and sanitation will be taken care of by a septic tank arrangement. This is going pretty strong, but why not? Do you not think we will get it back with interest in the service rendered by this gang? At any rate we propose to work it out and observe the results.

Maintain Uniform Section Force

Perhaps another item worth mentioning in connection with out labor situation is our effort to stabilize employment. For the past few years we have undertaken to maintain uniform section, bridge and building forces throughout the year. There may be exceptions to this rule, but generally it is the practice, and you would be surprised, if you are not familiar with the results, to see how much work a section foreman and three men can do in the summer season when his heaviest work takes place and also be surprised at how much necessary work there is for a foreman and three men during the winter months when the work is supposed to be slack. In connection with our uniform section force, we undertake to maintain a foreman and three men the year around. The force above that number on regular section work is regarded as "extra." Much has been said in the past about the additional cost of work due to inexperienced track labor employed seasonally. We have found such claims to be true and that as a rule three experienced men will do as much or more work perhaps than five or six inexperienced men. This goes far to offset what may seem to be unnecessary labor expense during the winter months.

Another very attractive feature of our employment is our group insurance for the protection of the families of employees. The company pays a part and the employee the balance. His part may be carried under our system without overburden with the result he has protection in an old line company so long as he remains in our employ.

I have enumerated many of our conditions with respect to our labor and its supervision. Your problems may be somewhat different but you have the same human element entering into it. That is something we cannot escape, and as supervisors we must not only think ourselves but must carry much of the burden of doing the other fellow's thinking. In my opinion it is the supervisor who is the most thoughtful and sympathetic with his men who accomplishes the most. I cannot bear down too strongly with respect to our foremen. They are the backbone of our good or bad labor conditions, as the case may be, and therein lies our opportunity.

THE BOSTON & MAINE has established traffic offices at San Francisco, Cal., and Seattle, Wash.; Tracy Cummings, Pacific Coast agent, is at San Francisco, and the representative at Seattle will be H. L. Anderson.

Superintendents Meet at Montreal

Convention characterized by active consideration of practical transportation problems

THE thirty-third annual convention of the American Association of Railroad Superintendents, which was held in Montreal, Que., this week, was characterized by a crowded program of papers and reports on such intensely practical transportation problems as methods of operating freight trains to avoid overtime, overcoming the cross-haul movement of empty cars, securing greater efficiency from locomotives, increasing the car load, meeting motor bus and truck competition, organizing for economy campaigns, etc. The various sessions were presided over by E. H. Harman, president of the association, and assistant to general manager, Terminal Railroad Association of St. Louis.

The report of J. Rothschild, secretary, showed that 375 new members were elected during the year stop. The total membership now stands as 1,745.

The annual banquet which was held at the Hotel Windsor on Thursday evening was addressed by Sir Henry Thornton, chairman and president of the Canadian National Railway System, and by Robert S. Binkerd, chairman, Eastern Committee on Public Relations.

The convention was called to order at 10 o'clock on Tuesday morning by President Harman. F. P. Gutelius, resident vice-president of the Delaware & Hudson at Montreal, welcomed the convention to that city. After replying to the welcome Mr. Harman reviewed the work of the Association during the past year, concluding with more general remarks about the responsibilities of the superintendent as follows:

We, operating officers, must of necessity form the link between the owners and employees. It is an important task of ours to see that the employees are not influenced by false propaganda that may be circulated among them. We must not allow them to believe as truism statements such as "The management cares nothing about you,"—"It pays you as little as possible when it can afford to give you more,"—"The employers don't really care how you treat the patrons," etc. We know that the managements of our railways want every employee to be as courteous and helpful as possible to our patrons. We also know that the managements desire to pay as high wages as are consistent with the railway's earning a fair return upon their investment and charging the public reasonable rates. We all know that wages now constitute so large a part of the cost of running the railroads, and that their net operating income is so small a part of their total earnings, that no substantial increase in wages can be granted without making necessary substantial increases in freight and passenger rates, and that such increases in rates are extremely difficult to obtain. But most employees do not understand these things, and if operating officers do not give them the authentic information concerning them, they, the real power of the machine, will be uncivil, incompetent and the railroad will be ineffectually operated.

Operating officers have frequent opportunities to come in contact with employees, both individually and in conference. At such times we should make it our business to acquaint them with the true situation. We should inform ourselves better in regard to wages paid in other industries in our territory, and also in regard to the total earnings of our railroads, and what part of these earnings are paid out in wages, as well as the amounts spent for fuel, materials, taxes, interest, etc. We must show them that if in the long-run they are to obtain higher wages, they must help the management to increase the efficiency and economy of operation as well as assist in the creation of a favorable public sentiment. In other words, the operating officers should be prepared, whenever opportunity is offered in the ordinary course of business, to tell the employees the truth about these things.

The superintendent and his co-officials are also the contact points between the road and the general public. They have before them a different task,—that of engendering within the community which they serve a spirit of fellowship and goodwill, as well as a true knowledge of railroad conditions. We should at all times try to keep in touch with public sentiment in our respective territories, and to prevent it from going astray in ways that will be harmful to both the railways and the public. As an example, it would be a financial impossibility for the railways for years to come to eliminate more than a comparatively small number of the existing highway crossings, and indirectly all of the cost incurred for doing such work would have to be borne by the public itself. A proper understanding of the situation on the part of the public would greatly reduce highway crossing accidents, and also save the railways a great deal of money by preventing unreasonable demands being made upon them for grade crossing elimination. No class of persons is better situated or qualified to make the public understand these things than railway operating officers.

M. J. Gormley, chairman of the car service division, A. R. A., spoke briefly at the opening session on the present business outlook. "The continuance of good business since 1922," he said, "is the longest period ever experienced without a depression." He attributed this in large measure to stability in transportation conditions with adequate capacity for all demands. As a result there has been no necessity for stocking up of supplies but a uniform, orderly process of buying has been followed. He attributed the reasons for this transportation condition to: (1) the large capital expenditures that have been made, (2) the more universal co-operation between roads and (3) the increased co-operation between the roads and the public. He urged the superintendents to continue their efforts to handle more business with less equipment.

Report on Meeting Motor Truck and Motor Bus Competition

So far as the competition from motor trucks is concerned, there is developing a clearly defined field for the motor truck wherein it can compete successfully with the steam railroad, the more important items of which are:

(a) Short haul package freight from important distributing centers to points radiating therefrom for distances up to 40 miles and, in some instances, greater.

(b) Short haul package freight moved from the warehouse of the shipper to the receiving platform of the consignee.

(c) Distribution by wholesale and jobbing houses to their own customers.

(d) Movement of a particular article from the plant of the manufacturer to distributing centers, in trucks especially fitted to carry the article without the necessity for crating.

(e) There was also a certain service in large cities, with horse-drawn vehicles, which was not competitive because of the limited territory such service could cover, forcing to the railroads a considerable traffic in switching service, that now because of the greater capacity of the motor truck never touches the railroads at any point.

Due to the very rapid growth of the motor truck industry, the rapid extension of the hard surface highways (most of which parallel the railroads), and the ease with which a single truck or number of trucks could be obtained, many individuals of small capital, or no capital, and partnerships of little more financial responsibility and even less experience in the complex thing called transportation, entered the field, the natural result of which was confusion and uncertainty, not only on the part of regulatory bodies, but of the managements of the railroads as well. But within the past two years a decided change has

taken place, a shaking down as it were, until at the present time 38 states have laws governing the operation of motor trucks on highways—7 states having passed laws placing highway carriers under state regulation during 1925. In addition, 5 states have repealed their old regulatory laws and enacted new ones; 150 bills affecting bus operation have been introduced in 42 state legislatures.

Under these conditions, railways with their well-organized departments, are better fitted to perform all the transportation service of the various communities they serve and should take the initiative in providing the service that is needed. That they have not been idle but have set to work to get back into their control the business which properly belongs to them is shown by the many and varied methods this committee finds are being adopted to this end, each railroad influenced by the particular conditions it must meet.

At the beginning of this year, 51 railroads in the United States and Canada were using motor trucks to supplement their rail service, and herein lies the answer to the question. A number of roads, active in working out their own problems, have adopted some (or all) of the methods briefly outlined below:

(a) Substitution of motor trucks on highways for so-called peddler local service where such can be done with speed and economy.

(b) Substitution of motor truck service in large terminal areas in lieu of trap car service.

(c) Lighterage of freight in single car lots or split deliveries to or from steamships.

(d) Limited experiments in collection and delivery service.

The Motor Bus

The competition by motor bus presents a somewhat different aspect and, under existing conditions, is a more difficult problem. This is so because of the immense number of privately owned passenger automobiles which are used by the owners for all sorts of journeys, from the short "commuter" service to the long distance vacation trips when the family is taken along. It is considered by many who have studied the subject that unless there is a decided change in sentiment, a large amount of passenger traffic is permanently lost by the railroads to the privately owned automobile, and that it is a very substantial figure is evidenced by the large number of such cars in use.

There is, however, a considerable traffic drawn from the railroads by the motor bus. A survey made jointly by "Bus Transportation" and the National Automobile Chamber of Commerce shows approximately 69,425 motor buses in use in the United States on January 1, 1926. One year ago, the number was 52,925. Of the total number in use January 1, 1926, 37,500 were common carrier operations, an increase of 3,400; and 31,925 non-common carriers, an increase of 3,100—the non-common carriers comprising hotel, sight-seeing and touring companies, railroad terminal companies, industrial, schools and (a few) miscellaneous uses.

The same need exists for regulation of these enterprises engaged in common carrier service by state and federal regulatory bodies, as in the case of motor trucks engaged in handling freight, which if uniformly applied with equal vigor as that to which railroads and other public utilities are subject, will have the effect of reducing the number of competitors to the strongest. In this connection, there seems to be a growing disposition on the part of regulatory bodies to scrutinize very carefully application for certificates of public convenience and to deny when it is demonstrated that the proposed bus line is simply an attempt to divide existing traffic. It is the general experience that new passenger business develops slowly, so that the obvious conclusion is that additional means of travel simply make a further division of that which already exists and the railroads must actively and energetically exert themselves to retain what properly belongs to them by right of development. There is recognized need for uniform regulation by suitable regulatory bodies, both interstate and intrastate and in all situations where the railroads are in a position and actually do render reasonable and satisfactory service, all proper means should be used to prevent unnecessary and unreasonable competition.

Committee: J. B. Fisher, chairman, general superintendent transportation, Penna., Pittsburgh, Pa.; F. E. Summers, superintendent, A. T. & S. F., Emporia, Kan.; Benjamin Thomas, special representative, B. & M., Boston, Mass.; J. H. Gordon, assistant chief of transportation, C. N., Montreal, Que.; A. Hatton, general superintendent transportation, C. P., Montreal, Que.; J. Leppla, superintendent, C. & N. W., Antigo, Wis.; J. H. Aydelott, general superintendent, C. B. & Q., Galesburg, Ill.; T. W. Fatherson, superintendent, C. G. W., Clarion, Iowa; W. L. Campbell, assistant to vice-president, Erie, New York City; W. S. Williams, general superintendent, I. C., Waterloo, Iowa; A. E. O'Dea, supervisor of transportation, L. V., Bethlehem, Pa.; D. O. Ouellet, general superintendent of transportation, M. P., St. Louis, Mo.; G. C. Woodruff, assistant freight-traffic manager, N. Y. C., New York City; E. J. Hackenberg, superintendent, N. P., Dilworth, Minn.; T. B. Wilson, supervisor of transportation, S. P., San Francisco, Cal.; G. O. Brophy, special representative, U. P., Omaha, Neb.; and Elmer T. Howson, western editor, *Railway Age*, Chicago.

Discussion

This report aroused active discussion which centered largely around the manner in which the roads which had entered the field of motor transport were operating trucks in local freight service. J. B. Fisher (Penna.) stated that his road had substituted motor trucks for local peddler trains at a number of places on the Central region, as well as elsewhere on that system, charging the same rates and rendering the same service as by rail. G. C. Woodruff (N. Y. C.) described the trucking operations of that road where this service has increased from 15 trucks two years ago to 700 today. These trucks are operated by contract because of (1) lack of experience in trucking operations on the part of the railroad and (2) the desire to avoid the hostility of the existing trucking companies and resulting rate wars. As a result they have contracted with existing companies in all cases. These contracts are based on a fixed price per ton of freight handled ranging from 7½ cents to 18 cents per 100 lb., depending on conditions. Experience has shown that trucks can be used economically for distances up to 30 or 40 miles and that the public prefers railway service to unorganized competing service where it is available. The truck has brought back to the railway considerable business that had previously been lost to other agencies. It has also enabled the road to increase its loading of l.c.l. freight. Trucks are operated parallel to existing lines and also from one parallel line to another where the traffic warrants.

F. O. Whiteman (E. St. L. & Sub.) stated that his road has extended both its bus and its truck operations this year and finds this business profitable. Its rates are about 10 per cent higher than rail fares and the public has shown its willingness to pay the price. B. Thomas (B. & M.) stated that his road has trucking service in operation experimentally between Boston, Lowell and Lawrence on which it is now about breaking even. On the three routes in operation, the loss of traffic has apparently been arrested. W. L. Campbell (Erie) described the transfer of l.c.l. freight from cars on the New Jersey shore of the New York harbor to inland stations on Manhattan Island by truck; with which service is co-ordinated an independent store door delivery service for use by a shipper where desired. This led J. H. Gordon and D. Crombie (C. N. R.) to describe the store delivery service which prevails at many points in Canada and under which, unless otherwise instructed by the shipper, all freight is turned over to the cartage company at destination for delivery to the consignee, under charges fixed by the published tariffs. Without such a plan they estimated that it would be necessary to increase their freight house capacity no less than 50 per cent at many points.

In discussing that portion of the report relating to motor bus operation, B. Thomas, (B. & M.) stated that this road will operate 500 road miles of lines this summer as described in the *Railway Age* of May 22, while a representative of the New York, New Haven & Hartford stated that buses were operating on 731 route miles of that road or one-third of the steam road mileage. A number of members also spoke of the use of rail-motor cars as a means of meeting the competition of motor bus lines and more particularly of reducing the cost of unprofitable train service.

Progress and Possibilities in Safety

By Thomas H. Carrow

Supervisor of Safety, Pennsylvania Railroad, and Chairman, Safety Section, American Railway Association

Vision based on practical knowledge and study of the subject led the Safety section of the American Railway Association at its annual meeting in 1924 to establish as its goal a 35 per cent reduction in accidents by 1930. It is the purpose of this paper to demonstrate how such a reduction can be made.

A division of a railroad is only as safe as the superintendent wills it to be, and not one whit safer. This fact was recently emphasized by a young but progressive superintendent, in a statement that "It is only fair and reasonable for my superior officers to assume that if my accident record is bad, my general performance is also bad, because accidents can and must be prevented on this division." With this declaration he proceeded to formulate plans for carrying on, not a spasmodic, but a continuous campaign of accident prevention on his division.

The development and introduction of a system of accident prevention on each unit of the railroads, and on the railroads as a whole, that will insure the mastery of danger on the part of employees, and the public as well, is a fundamental necessity. A defective tie, a broken rail, a missing bolt, a blunt switch point, an improperly displayed signal, a defective part of the running gear of a locomotive or car, missing or defective safety appliances, lack of safeguards on machines, defective walkways, litter and rubbish on the tracks and other dangerous physical conditions, may cause death or injury. However, it is estimated that only five per cent of all railroad casualties are in any way attributable to defective material and equipment, lack of safeguards, litter, or other physical hazards.

It is, nevertheless, a fact that by uniform application of improved design and construction, better maintenance and the installation of the necessary safeguards, a substantial reduction in the present number of accidents due to dangerous or defective physical conditions can be made, and for the most part without additional expense, but greater interest in safety.

Accidents attributable to the human factor are classified under two heads: namely, those due to (a) violations of rules and other forms of negligence and those due to (b) carelessness, thoughtlessness, indifference, ignorance or physical and mental unfitness and misadventure. The most impressive fact disclosed by an examination of the record of accidents due to violations of rules and other forms of negligence, is that some roads and some divisions of particular roads have much better records than others. The logical inference to be drawn from this fact is that the roads or the particular divisions that have the fewest accidents due to violations of rules and other forms of negligence provide better training, supervision and discipline than those that have poor records. One large railroad system, for example, shows 0.50 casualties in 1924 to all classes of persons in train accidents per million locomotive miles, compared with 2.52 for all roads. With a stable working force, there is no reason why accidents due to violations of rules and other forms of negligence cannot be practically eliminated on each division of every railroad just as they have been eliminated on specific divisions and particular railroads, because such accidents reflect failure upon the management, as well as upon the employees.

It is estimated that 85 per cent of all injuries on the railroad fall under the classification of carelessness, thoughtlessness, indifference, ignorance, or physical and mental unfitness and misadventure.

Accidents due to being struck by trains come under this classification, and the following records for the years 1911 and 1925 illustrate both the extent of the hazard and the improvement that has been made under this cause:

Struck or Run Over by Cars or Locomotives Except at Grade Crossings

	Employees		Passengers		Trespassers		All persons	
Year	Killed	Injured	Killed	Injured	Killed	Injured	Killed	Injured
1911	1,197	1,872	40	112	3,977	2,400	5,637	5,039
1925	400	709	29	41	1,757	883	2,422	1,995
Decrease	797	1,163	11	71	2,220	1,517	3,215	3,044
Per cent	67	62	28	63	56	63	57	60

Getting on and off trains, coupling and uncoupling cars, handling tools, handling material, slipping and falling are other major causes of accidents which may be attributable to carelessness, thoughtlessness, indifference and ignorance. The preventives are safety organization, education, persuasion, co-operation and first aid and medical attention. There is not a body of railroad men on any division of any railroad in the United States that will not eventually become safe men if these methods are intelligently and continuously applied.

The Make-up of a Man

It is a common tendency to draw a mental picture of a mass of buildings, track equipment and human being when we think of the railroads as a whole, as well as when we think of individual roads. The fact is that railroads are not operated by a mass of men, but by a large number of individuals, each of whom possesses a combination of characteristics peculiar to himself and whose best effort can only be brought forth on his specific job by bringing to bear upon him the proper sort of influences, and if there is any point that needs to be emphasized in safety work more than any other, it is that only by bringing each individual into the safety fold can the entire organization be made safe.

Health, strength, skill, "quick to act" and good eyesight and good hearing are the principal elements of the physical man on his positive side, while disease, weakness, clumsiness, awkwardness, laziness and poor eyesight constitute his major negative characteristics. The first step, therefore, in securing men of proper physical condition is medical examination and selection of applicants suitable for the jobs to be filled. The second step is to provide working conditions conducive to health and strength, and the third step is to see that the health and strength of employees are conserved. With these several features attended to, disease and all the other negative characteristics of the physical man will be overcome as far as it is humanly possible and the accidents arising from impaired physical condition of employees will thus be minimized.

The railroads can draw up specifications for machines and material and thus obtain the kind desired, but when hiring employees all that can be done is to take the best available from those who apply for work. It is, therefore, important that the understanding, judgment, reason, perception and apprehension of those who are selected for employment be developed to the fullest extent. If this be done the negative side of the mental man, namely, natural limitations, forgetfulness and dullness will be overcome to a considerable extent and accidents attributable to these characteristics will be minimized. This feature of safety work obviously presents a large field for intelligent effort, particularly from the standpoint of individual instruction and supervision. A little extra fertilizer produces a better turnip, and a little additional guidance and direction will make a safer and a better man. If anyone thinks this is swivel chair theory, let him examine the accident records of 25 different railroad shops having approximately the same number of employees and operating under similar physical conditions. Such an examination will show a variation in the accident frequency rates of from 5 to 50 casualties per 100 employees per year. There is only one explanation of this variation, and that is the shops having the good records have planted the seeds of safety in the minds of the employees and they have borne fruit.

A man may be physically sound and possessed of a highly developed mentality with his moral nature undeveloped. This constitutes a serious impediment to safety. Fundamentally safety is right and proper and merits the moral support of everybody, but unfortunately there are many employees who do not appreciate this fact and are, therefore, indifferent to and take no active part in safety. In other words, the negative side of their moral nature, namely: indifference, carelessness, perversity, recklessness and lack of precaution is developed in greater degree than the positive side. Hence the necessity for including in our safety activities ways and means of appealing to the moral nature of men in order that an appreciation of the right, desire to do the right and dissatisfaction with wrong may be developed. I am inclined to believe that the greatest results in safety may be obtained in this direction, because love and appreciation of any kind of work makes it easy to do. After all, safety is not abstruse, nor is it difficult to understand, and perhaps no avenue of approach will lead more directly to success than the approach through the moral nature of railroad men.

Report on "Main Trackers"

Fast freights should be under the personal supervision of the general superintendent of transportation or an assistant general manager, so that if a train, through accident or otherwise is delayed, the loading can be cut quickly or necessary action taken to enable it to make up the lost time and insure its reaching its destination on time. In addition to the improved service thus rendered to patrons there is, in the "main tracker" movement, greater economy of operation. While the making up of solid-destination

trains may slightly increase the cost of operation at the originating point, it saves the cost of rehandling at the various intermediate yards, so that, if the "main tracker" movement were to be established thoroughly and generally, it is the opinion of the committee that it will be found that the additional cost per car in the originating yard will be no more, but somewhat less, than the decrease in the cost per car in yards where intermediate switching is eliminated. Way freights and pickups at local stations should take loads, regardless of destination, and handle them to the end of their run or first divisional point, where such cars should be classified for dispatch in "main tracker" or pre-classified trains.

The committee is unanimous in the opinion that, in the case of a train dispatched from a given terminal, classified for handling through to another specific terminal over two or more operating divisions, the classification should be maintained at all intermediate terminals, that is, whole groups being moved solid to destination yards; for it is obvious that a train starting out properly classified and then beginning to pick up and set out cars without due regard to maintenance of the classifications, defeats the very purpose of the classification at the initial point.

In building up these fast freight trains when there are not enough cars to make solid trains for destination of far-distant breakup yard, destination cars should be placed in a group in the train which should be filled out with cars for the second farthest division or the third farthest division, and so on, at each of which latter points the fill-out can be cut off and a group from that yard added for final destination.

It is the practice on railroads which have established through freight train service, to work classifications into trains where they belong, regardless of delay; but with many such roads, where there is likely to be any delay to a fast freight train, it is usual to add, when attaching the road engine, such classifications as will match with the classification on the head end of the train, also attaching any classifications which will match with the classification at the rear to the caboose ready to couple to the train, if a change is to be made in cabooses. Many of the railroads inspect for safety only at such terminal points, not holding trains longer at a terminal point than it takes to make inspection and change engines and cabooses, which should be done in 15 or 20 min.; any classifications which cannot be placed in the train inside of 15 or 20 min. should not be put in the train but forwarded from the station in some other than the fast freight.

At every yard where fast freights are handled they should be given preference over other trains, the forces lined up, and doubled if necessary, in advance of arrival, so that they will concentrate on these trains and see that they receive preferential handling. These trains should be, and usually are, manned by the oldest men in service, on account of their being, wherever they exist, the most desirable runs. The arrival of trains at a given point must be anticipated, to have pusher engines on the line where pusher service is necessary.

The group system in the handling of freight from distant points has to be managed so as to take care of the flow of traffic. When traffic is normal, trains can be made up solid for destination. However, on days following Sundays and legal holidays, when loading is light, the group system should provide the same service through to destination as when traffic is normal, thus maintaining regular service, even if a train has to be cut down to 60, 50 or 40 cars, avoiding the holding of cars an unusual period of time. As the traffic flow increases, which it does at different seasons of the year on account of seasonal business, solid destination or group destination sections of trains can best be run.

The one important thing in connection with the scheme of running trains through is for equipment to be given proper attention at the originating point, or the place where the train is made up, so that bad order cars may not develop along the line to cause delay.

It is the thought of the committee that the outstanding features which should be borne in mind are:

(1) Such classified trains avoid congestion in intermediate yards and eliminate the necessity of increasing yard facilities, the cost of which sometimes may be prohibitive, and at some points there is the possibility of limiting yard facilities or bringing about greater utilization.

(2) They expedite the movement of extra-divisional cars.

(3) They expedite the movement of cars originating at or destined to divisional points.

(4) They avoid the expense of rehandling cars at intermediate points.

(5) They reduce delay and damage claims by eliminating intermediate yard switching.

(6) The service is such an improvement and so superior that patrons ask for it and want their business moved in these high-class freight trains, resulting in increase in business for the road giving this service.

(7) The blocking of city loads permits of more direct handling to the unloading yard, enabling the carrier to avoid unnecessary and expensive handling, and the patron to receive better service, as well as relieving cramped yard facilities, thereby keeping movements in terminals under better control.

Committee:—Charles Burlingame, chairman, superintendent, T. R.R. Ass'n of St. L., St. Louis, Mo.; B. B. Tolson, assistant to general manager, M. & O., Murphysboro, Ill.; T. J. Jones, general superintendent, Wabash, St. Louis, Mo.; W. S. Williams, general superintendent, I. C., Waterloo, Iowa; J. K. Brown, assistant superintendent, N. Y. C., Buffalo, N. Y.; W. F. Eckert, superintendent, Reading, Philadelphia, Pa.; and Victor Parvin, superintendent, Ann Arbor, Owosso, Mich.

The Prompt Movement of Refrigerator Cars

By W. D. Beck

Manager, Refrigerator Department, American Railway Association

Each year the fruit and vegetable crop increases. During the last nine years the carload movement of fruits and vegetables was as follows:

1917	412,170	1922	854,081
1918	495,576	1923	878,502
1919	591,003	1924	923,549
1920	663,447	1925	963,442
1921	751,699		

Other perishable commodities demanding refrigerator cars are also increasing. Shipments during the months of August, September and October are by far the largest, and it is during that period that every effort must be made if the railroads serving the producing territory are to have a full supply of cars. At the present time, the ownership of refrigerator cars by railroads and private car companies in the United States is approximately 152,000 cars. This figure includes 20,000 cars which are owned by the packers and used, principally, for the movement of packing-house products, leaving 132,000 cars available for other perishables. During the past several years, there have been installed in service new refrigerators, as follows:

1922	15,648	1925	5,626
1923	22,078	1926 (as of March 1)	1,206
1924	13,456		

and orders have been placed for 6,000 more.

The refrigerator department of the Car Service division was organized on July 1, 1918, with headquarters at Chicago, for the purpose of assuming a more direct and centrally located control. Under per diem Rule 19, the Car Service division is given control over railroad-owned refrigerator equipment, but such authority does not obtain with respect to private car lines. However, it has been agreed that representatives of private refrigerator lines will at all times work in close co-operation with the refrigerator department for the handling of refrigerator cars and assist in meeting emergencies by authorizing the use of their cars to the extent that this can be done without detriment to the interests for which these cars were provided. In return for this consideration these private car lines are assisted in caring for the movement on railroads where they have contracts through this department.

To assist the railroads in securing the most prompt possible release of refrigerator cars, there have been established, under the auspices of the shippers' advisory boards, what are known as terminal perishable committees. These committees have been in existence during the past two years. In 1924 there were 65 such committees, while in 1925 we had 141 committees, and it is hoped that we will have as many, if not more, this year. These committees commence operation on the first day of June and continue until the latter part of October. They are composed of receivers of perishable freight, together with the local railroad agents, in all of the heavy perishable receiving cities—their duty is to secure the prompt release of refrigerator cars.

In 1923, 61 per cent of the refrigerator cars were released in free time, during the period for which reports were compiled; in 1924, 68 per cent, and in 1925, 72 per cent. Although it will be noted that a considerable improvement has been effected in the release of refrigerator cars within the free-time period, there is still opportunity for greater improvement in this direction, so that it is hoped, through your efforts, we will make a better showing during the coming months.

It is estimated that the grape movement from the Pacific Coast

alone this year will require from 85,000 to 90,000 refrigerator cars, practically all of which move during the months of September and October, during which time the peak movement is on elsewhere. There are no storage plants for grapes. They must be picked, shipped, and sold with the greatest dispatch to prevent loss. One of the greatest problems of the railroads is the handling of refrigerator equipment, so as to insure its return to producing territory in sufficient volume during the period of peak production to prevent a car shortage.

In order to move the large crop during the next six months, it will be necessary that refrigerator cars be: (1) Placed promptly for unloading; (2), moved promptly from team tracks when released from load, and (3), placed promptly in road trains and not left standing in yards and terminals. The general reaction to previous appeals of this sort has been very good, but our checks still disclose many exasperating delays to refrigerator equipment, at a time when they should be rolling rapidly toward the producing territory. It will not do for these cars to be delayed in one section of the country from 24 hours to 3 days for train service, while in other sections they are being rolled at the rate of 300 miles per day.

We own enough cars to handle the business if they can be kept on main tracks, and not be allowed to slip out of sight and remembrance. Please recall that from January to June there are from 20,000 to 30,000 idle cars and that they cost $3,000 each. You cannot justify more purchases until you have so educated your employees to the extent that cars are gathering rust during the peak season. Will you not immediately, upon your return to your home base, institute such a system and check as will insure that there will be no delay to this refrigerator equipment, because, without your help, we shall be unable to cope with the tremendous volume of perishable business which faces us?

Some Thoughts on Train Schedules and Dispatching Methods

By John A. Droege
General Manager, New York, New Haven & Hartford

In the American Railway Association's standard code of train rules, Rules 71 and 72, we read the following footnote:

"Railroads may, if desired, modify their rules to require trains to wait indefinitely at schedule meeting points for trains of the same class, unless otherwise directed by train order."

This footnote, expressed in everyday railroad language, permits the use of the so-called positive meet in lieu of the much better known "superiority by direction" in scheduling trains and readjusting their movements more particularly through the medium of the time-table.

The road with which I am associated worked under the "superiority by direction" method until it became too cumbersome and involved, and in 1898 culminated in the entire abandonment on that road of "superiority by direction" and the substitution of the positive meet. On the New Haven there are about 2,000 road miles (approximately 1,100 being single track), on which about 1,000 passenger trains are operated each week-day; and the percentage of local freight and passenger business, as well as package or l. c. l. freight business, is far above the average. It has been estimated that to go back today to "superiority by direction" would necessitate the employment of from 25 to 40 per cent additional train dispatchers. There have been no accidents during the last 25 years that can be ascribed to the use of the flat meet. It is interesting to note that in a vote taken in May, 1914, when a new book of rules was being put into effect, only 9 of 1,710 locomotive engineers on the New Haven favored "superiority by direction."

Some of the arguments in defense of the positive meet system are:

1. Enhanced simplicity by eliminating, to a great extent, the ever-present complication incident to moving trains by orders.

2 Minimizing delays and correspondingly high speed made necessary to overcome the delays slowing down or stopping heavy trains to get orders and by allowing them to keep moving under the positive assurance that they have the right to go to the meeting point without additional help.

3. Increased confidence in the minds of enginemen and others as to their right to proceed to a scheduled meeting point for opposing trains of the same class.

4. Reduced number of train orders; the system takes care of conditions which would otherwise require them.

5. Reduced liability to serious delay because of failures of communicating facilities.

6. Simplification of time-tables through removal of many detailed instructions and footnotes, often of a confusing or even contradictory nature.

Where the hands of a watch are consulted the opportunity for error is ever present, small perhaps, but nevertheless an added count. Under "superiority by direction" fundamentally, both time and place are important; under the positive meet, the place alone is paramount and controlling.

As practical operating men, you will agree that it is desirable to confine the issuance of train orders to a minimum and that an order making a fixed meeting point is always preferable to a time order. You will probably even agree that a train order is at best a "necessary evil," and that a "time order" is possibly the Devil's own handiwork. That fewer orders are required under the positive meet is a fact mathematically demonstrable, and with it the "time order" need seldom, if ever, be used; "superiority by direction" is nothing more or less than a perpetual "time order."

Few roads today actually use the "superiority by direction" absolutely and in its entirety, although operating officers sometimes try to make themselves believe they do. It is modified on almost all roads in many ways; its requirements are side-stepped through subterfuge, substitution and evasion. The three most generally used methods to evade its weaknesses are:

1. Confirmation of a schedule meeting point by a train order.
2. Use of time-table notes or rules giving a train run by the same crew the right into a terminal against itself, and
3. Supplementary footnotes on time-tables, reversing the "superiority by direction," or nullifying its effect.

The most frequently used method is that of issuing an order to insure the regular meeting point being made. Perhaps the most inconsistent method is that where roads give all trains eastward, for instance, the superiority generally over trains of the same class in the opposite direction; then introduce footnotes on the face of the time-table, giving one or more specified westward trains the right over eastward trains, and following this again in some instances by the issuance of time orders again, giving the eastward trains the right over westward trains.

The roads operating under the "superiority by direction" usually add—and are usually compelled to add—a number of footnotes having to do with the actual operation of the train. Here again is encountered a practice, possibly necessary under the circumstances, but highly objectionable if it can be avoided. The face of the time-table—that is to say the schedule of the train—should be self-contained and complete. Everything necessary to the operation of the train should be there and nowhere else; nothing should be there but matter essential to train operation. To be compelled to look at the bottom or side or elsewhere for important matter pertaining to the operation of a train is inconsistent and undesirable. The ideal can be reached under the positive meet method; it cannot be attained under "superiority by direction." Permit the modest statement that there are no footnotes or addenda on the face of the New Haven time-tables that affect the physical operation of trains.

Various arguments are advanced against the use of the positive meet. Of these, only one is worth considering seriously; that is, the possibility of a wire failure or the breaking down of an engine preventing a train from reaching its meeting point. In November, 1922, practically all wires were prostrated in eastern Massachusetts and Rhode Island and trains were moved on many sections of the road during a period of three or four weeks, with practically no communicating lines; and yet with little or no delay.

There has been a most decided change and advance in the possibilities and opportunities of communication today, as compared with those existing in the days when "superiority by direction" was cleverly conceived to dispose of a difficult problem. In addition to the well-known telegraph and telephone lines, the highways are nowadays everywhere, and a telephone may be found in any farmer's home. A resourceful conductor will commandeer a section foreman's motor car, a farmer's Ford, or a commercial telephone to get his train out of a hole.

If either engine is disabled under the positive meet, one train at least will go to the meeting point and the dispatcher will ordinarily know where that train is, and he would presumably hear very promptly from the other. Theoretically, therefore, if the inferior train goes out of business under the "superiority by direction," the superior train can keep going; but this carries with it the assumption that the engine of the inferior train, if broken down, is on a siding, or can go on a siding after the trouble occurs. The same general logic applies to wire failures, in that the trains under the positive meet will go to the meeting point if the road is not blocked. If either one is in trouble and gets in communication with the train dispatcher in any way, he has every reason to assume that the other one is at the meeting point. Under "superiority by direction" methods, this is only a half-truth.

Discussion

In opening the discussion of this paper, B. Thomas (B. & M.) stated that an investigation of the positive meet on that road a few years ago failed to show its advantage over the "superiority by direction." In reply to numerous questions Mr. Droege stated that a study of the question of returning to the "superiority by direction" on a busy single track line would have required 40 to 50 per cent more orders. He attributed the reluctance of operating officers to abandon the "superiority by direction" to fear of accident, supplemented by the fear of the dispatcher that he will lose his job.

Report on Ways of Operating Freight Trains to Reduce Overtime

Power improperly maintained will always defeat an otherwise economical and efficient operation. Engine failures, particularly delays on account of low steam, should in every case be thoroughly investigated and the condition corrected. The arrangement of crew runs should be given careful consideration in order that arbitraries such as punitive overtime, constructive mileage and other special allowances for service not performed will be avoided.

The road crew's time on duty consists of : (a) Time consumed from marked to departed; (b) time consumed on road; and (c) time consumed from arrival to off duty.

Time from Marked to Depart

The duties performed by road crews in yards before the train is dispatched should be limited as much as possible and care taken that the work assigned them is not a duplication of work already performed by terminal forces. The point of registry for engine crews should be as close to the track on which engines are dispatched as practicable. The engine should be in condition so that it may be moving from the dispatch track in not to exceed ten minutes from the time the engine crew reports for duty. An ideal arrangement would be whereby the hostler has all freight engines oiled and lubricators working when the engine crews report for duty, the engine crew being responsible only for knowing the condition of the fire box and inspirators and that the tank is filled with water. Where terminal layouts permit, road engines may be placed on the trains by hostlers or terminal crews.

The terminal duties of conductors and trainmen should be minimized by having all of the train on one track, if possible, caboose on, slack stretched, air brakes tested, leaks repaired and faulty brake adjustments corrected. Ordinarily, this necessitates the dispatch yard being piped with air lines. Waybills together with the train list should be ready for the conductor when he reports, eliminating all number taking or checking of the train and the taking of seal records, which of necessity has just been done by the yard force and they should be held responsible. The conductor should check his train and take seal records at the first opportunity en route. The conductor should also be furnished with a consist of the train, showing cars and tons of each classification and the order in which they are placed in the train. In other words, every assistance should be rendered to get the train moving as soon as possible after the crew goes on duty. Road crews in yards invariably cause more or less delay to yard operation. The importance of keeping the "Marked to Departed" time to a minimum cannot be overemphasized; this applies to all classes of freight service.

Time on Road

The "Time on Road" of the various classes of freight service is such that each should be handled separately.

The slow freight or full tonnage trains handling the commodities in which the time element is not as important, usually constitute the major portion of the business and an effort should be exerted continually to keep these trains moving. It has been found that the application of a booster to the rear tender truck of the engine quickens the road movement by assisting the engine in starting the train as well as increasing the tractive effort of the locomotive from 12,000 to 15,000 lb., which should be considered in the engine rating, providing the grades are such that its constant use is not necessary. Boosters are effective up to speeds of 10 to 12 miles per hour.

The opportunity to inspect the train at water stops, meeting points, etc., should be taken advantage of wherever possible. Two members of the train crew, if practicable, or at least one, should start immediately from the caboose to inspect the train for hot boxes, train line leaks and other defects, taking necessary corrective action and remaining at the head end to watch the train pull by in order to ascertain whether brakes have released properly. Journals which have just started to warm up may be detected and the condition then corrected easily, thus avoiding serious delays later on. The use of a satisfactory cooling and lubricating compound in emergencies has been found to be of great help as a "first aid" in treating a journal which has just started to heat, as well as providing a safe means of getting the more serious cases to some point where they can be set out and given necessary attention. It has been found that a number of hot boxes can be avoided if consideration is given by car forces to the reversal of the direction of car movement which takes place in some terminals and loading stations. If the packing is adjusted after the car is lined up in the proper direction the chances for hot boxes will be minimized.

Enginemen should be schooled in the handling of air brakes as well as the proper manner of taking slack when starting long trains to avoid damage to equipment and consequent delay. All members of the crew should be on the watch for anything wrong with their train and those on the engine for a "stop" signal from the rear.

An alert dispatching force is of paramount importance to efficient operation. The use of the "19" order, particularly on single track, has been found to be a great time saver in that freight trains can be kept moving in many instances where the use of the "31" order would compel them to stop. When the conductor is on the rear of the train, as is usually the case, a 15 to 20 min. delay usually results when a "31" order is used. Telephones connected with the dispatchers' office, or with an open telegraph office, should be located at all "blind" sidings. Conductors should report promptly when delayed at these points, also at points where trains are liable to be stalled.

A symbol system, where through traffic is sufficient, is often the basis of a smooth working divisional operation. It provides for the movement of trains at regular intervals, so spaced that incoming trains, or symbols, may be continued, or trains started when they will be least interfered with, both at terminals and on the road. These symbol trains should be covered by pool crews rather than by assigning regular crews to certain symbols, as under the "first in-first out" arrangement no loss in wages results when regularly assigned crews are unable to cover their symbol. It is also found that this creates a spirit of friendly rivalry by causing the crews to strive to outdo one another on each individual symbol. This may well be encouraged as it automatically tends to speed up the operation. However, the supervisory forces should be constantly on the lookout for those who might take chances where such competition exists.

A number of large railroads have had a marked reduction in delays charged to the locomotive where freight engines are regularly assigned. They have also been able to increase the train load and reduce the time en route by segregating heavy freight power so that all power on a given freight district is of the same class and tractive effort. There is no question but that a regular assignment of engines reduces locomotive maintenance costs and segregation reduces material inventories and simplifies the making up of trains at terminals.

The ideal operation is one with train-loading so arranged that the greatest number of gross ton-miles per train-hour is produced without punitive overtime. With road delays minimized, and no overtime accruing, on 100-mile runs an average train speed of approximately 14 miles an hour will necessitate expeditious terminal handling. In other words, if this is accomplished without overtime, the productive time of the crew (time on road) will be about 90 per cent, and the non-productive time (marked to departed and arrival to off duty) approximately 10 per cent, or a total of 51 min. terminal time.

The Local Or Way Freight

Where the less carload business is heavy and there is a considerable amount of switching to be performed, economy may be effected by assigning additional trainmen to these trains. Under this arrangement, the trainman best qualified to handle the switching is assigned to this work and with the head trainman, handles the switching at the stations, assisting with the loading and unloading whenever possible. Another trainman is assigned to the handling of the less carload shipments. He spots the cars at the platform, hands out the freight to be unloaded and stows that which is taken on. He also frequently has an opportunity, while the switching is going on, to sort out the freight and place it near the door where it can be readily unloaded at the subsequent stations.

The peddler cars should be made up at the transfer points so that the least possible delay will be experienced in unloading, as this latter is usually a main track operation where no time should be lost. Freight should be placed in the car in station order to facilitate the handling. The conductor should be educated to report any irregularities in the loading which result in delays and the matter handled for correction. If the local is hauling empties to any intermediate station, and there is a considerable amount of less-carload freight for that station, it is well to make a straight car of it, serving both purposes with a minimum delay. Also, the station business may be handled more expeditiously by the agent loading the outbound empties. This should be carefully checked, however, as the freight may be loaded in the way car while the switching is going on without loss of time to the crew, thereby avoiding subsequent terminal delay to the outbound car on the transfer platform.

The lighter types of freight power are usually assigned to the local. Unless grades are such that full rating will result in a very short train, the local should be operated with greatly reduced tonnage as the nature of the work, such as spotting the way cars which are usually handled on the rear of the train, picking up "cripples" behind the caboose, the frequent necessity for clearing the main line promptly, as well as the ability to get quickly from one station to another, automatically defeats any idea of a tonnage proposition.

Much time is lost at stations if it is necessary for the conductor to confer with the agent as to the station switching, cars to be picked up, etc. It is of the utmost importance that the local crew be informed before arriving at a station just what is to be done so that when stop is made they may immediately proceed with the work; this is sometimes arranged by the agent advising the conductor by wire of the work to be performed at this station.

It is a good plan to have the agents notify the dispatcher each night of the cars to be forwarded and switching service required at their stations the following day. The dispatcher in turn embodies this information in a "line-up" for the crew. This is made in duplicate so that the engineman and trainmen, as well as the conductor, may know what is to be done. The dispatcher having this advice is also in a position to estimate the probable length of time the crew will remain at stations, thus assisting him in keeping all trains moving.

The dispatcher may frequently add another man to the crew by placing a work order which may eliminate the necessity for protection and permit the flagman to assist with the work. The value of the work order as a time saver in this connection is obvious and should be taken advantage of whenever possible.

Drop and Pick-Up

It frequently happens that the volume of local carload business is such that the local freight is over-taxed in the handling of this work. This being the case, the drop and pick-up is resorted to. Careful attention should be given to the make-up of this train. Cars should be so placed in the train that they can be disposed of at the stations en route with the least possible delay. Drop trains may usually be given full tonnage rating. The nature of the work is such that this train can be run at night when there is less interference, as a rule.

Arrival to Off Duty

The prompt release of incoming crews should be provided for. If possible, trains should pull in on the track where they are to be yarded and engines cut off and put on the ash pit. Point of registry for crews going off duty should be conveniently located where each member of the train and engine crew will register off duty as soon as his individual duties are completed.

Committee:—H. F. Burch, chairman, assistant general manager, D. & H., Albany, N. Y.; J. H. Aydelott, general superintendent, C. B. & Q., Galesburg, Ill.; W. E. Brooks, general superintendent, M. P., Little Rock, Ark.; E. L. Magers, superintendent, St. L.-S. F., Springfield, Mo.; J. J. Sunderland, superintendent transportation, C. N., Quebec, Que.; G. E. Rollins, assistant superintendent, A. C. L., Tampa, Fla.; John Leppla, superintendent, C. & N. W., Antigo, Wis.; P. L. McManus, general superintendent, E. I. & T. H., Terre Haute, Ind.; J. M. Condon, superintendent, Erie, Jersey City, N. J.; J. T. Nedwideck, general superintendent, D. & R. G. W., Pueblo, Colo.; T. B. Wilson, supervisor of transportation, S. P., San Francisco, Cal.; S. A. Covington, general superintendent, Ft. W. & D. C., Wichita Falls, Tex.; and J. K. Savage, general superintendent, C. P., Montreal, Que.

Progress Report on Manual Block Rules

The Committee on Manual Block Rules submitted a progress report on modifications and additions to manual block rules and rule 93—the yard limit rule, without making any recommendations.

This rule aroused active discussion. S. H. Shults (C. B. & Q) pointed out that this rule can be modified to meet local conditions. On the Burlington, yard engines are required to clear all passenger trains while other trains must move under control, prepared to stop. He attributed the complaint against this rule to the practice of setting the yard limit boards out too far. On one division in Florida the A. C. L. establishes his different modifications in various terminals, keeping these limitations before his men by monthly bulletins. F. M. Brown (P. & L. E.) stated that Rule 93 has been modified on his road to require a flagman to leave a lighted fusee whenever he is called in, day or night. Yard engines are required to protect themselves against all trains, may proceed on the main track only after receiving authority from the dispatcher.

On the Pennsylvania it was stated that it is the practice for passenger trains to operate through all yards at authorized speeds—60 to 70 miles per hour. An inferior train cannot operate on the main track of a single track line on the time of a superior train but on multiple track lines they operate on the authority of the signals.

The Selection of Men for Officers

By R. E. Woodruff

Division Superintendent, Erie Railroad, Buffalo, N. Y.

Why do some excellent workers make poor foremen? Why do some men of limited schooling make good officers? What traits of character are desirable in a good officer? It is necessary to answer these questions before any intelligent consideration can be given to methods of selection.

In the first place, we doubtless will agree that an officer should have a strong constitution and good health. We know by experience that the judgment and the energy of a sick man are not up to standard. Second: He must be intelligent. By this is meant having the capacity to observe quickly new conditions and changes and to adjust himself to them, and to understand the universal law of cause and effect. Third: He must have natural aptitude for his work and be supplied with suitable emotional qualifications or the right temperament. He must be of the type that is fond of railroad work, its problems, its difficulties. He must like the contact with other men and know how to get along with them, because no matter what department he heads, an officer's chief function is the handling of the human element—workers handle tools and material. Fourth on the list of qualifications is education, this word being used in its broadest sense to include not only schooling but practical knowledge and training.

Other qualifications can be mentioned, but they all can be listed under these four broad headings. These four are important, because the man who is intelligent, who can handle men, who has good training, but who is ill or not on duty at critical times, is handicapped as an officer and is a type to be avoided. No matter how strong physically, nor how well he gets along with people, nor how well educated, if he has not native intelligence, he will be classed as a "good fellow" but not very deep or able—sometimes even foolish. If strong, intelligent and well-educated but lacking

in those social qualities that enable him to get along with men, he will fail as an officer, because he will be unable to secure the necessary co-operation of the rank and file and of his associates.

If strong, intelligent and of right disposition, any man can secure the necessary education, though he is handicapped in many positions until the essential knowledge is obtained. Such a man, however, learns quickly, and if early schooling was limited, makes up for it by later study and often soon excels the college graduate in real useful knowledge.

What men have these four qualifications highly developed? All men have them to some degree. No man is perfect on a hundred-point scale, neither is any man zero. Scientists prove from their investigations that the distribution of human capabilities follows a general law. This law may be stated thus: in considering any human trait, the chance selection of 100 men will show that 50 per cent are approximately average in that trait, 25 per cent are above the average and that 25 per cent are below the average. This, perhaps, is one reason why all men consider themselves good judges of men. A chance "blindfolded" selection of 100 men will produce 25 men above normal and 50 per cent average.

If, now, we are to be efficient in our selection of officers, we should choose only those who are above the average. Even if we merely excluded the lower 25 per cent, it would be a step in advance of present practice. This is based on the statement of psychologists that our present unscientific methods of selecting men are no better than if it were done by chance. The reasons for this are interesting. Our minds function both intellectually and emotionally. When we are selecting a man we are guided largely by our intuitions and feelings, so if we like a man, we easily overlook his shortcomings and do not weigh as seriously his mental abilities and capacities. But if we dislike a man, nothing he does is right and we are quick to find fault with his alleged deficiencies. Accordingly, officers sometimes promote the men they like, rather than men who are capable. Errors are made, too, because men are considered "sensible" only when their opinions are like ours, so men are selected who are "sensible."

Again, some officers will recommend promotion for a subordinate simply to get rid of him. Others will never recommend a good man for promotion, selfishly wanting to keep him. Frequently a man is selected for promotion almost entirely on the basis of his training and education, because often such promotion means fewer changes and less confusion. Again, seniority sometimes governs, even when qualifications are unequal. These are some of the shortcomings of present methods and emphasize the need for more intelligent handling. Realizing that the character of an organization is determined by the character of its chief, we should not be content with any one less efficient than the best obtainable.

What better methods are available?

Method 1

There is no real reason why it should be hard to judge men correctly. Human nature can be measured and classified just like any other quality or quantity. But in doing this, we must use our intellects rather than our emotions.

Taking in order the four essential qualifications—first, *health and physical structure.* A doctor's examination will determine hidden factors, such as high blood pressure, hernia and the like. But the performance of a man over a period of years should show clearly his physical stamina and fitness. This should not be left to guesswork.

Intelligence: There is no substitute for accurate knowledge obtained by observation. It is assumed that the candidates for promotion are already in the organization and hence can be observed and watched. Adaptability, versatility, initiative and alertness can all be judged by those with whom the men are associated daily.

Temperament and natural aptitude: No man can do good work in any occupation that he does not like, and his work will be easiest and he will be most successful in the job that he likes the best. Since an officer handles men, he must like men, understand them, know how to get their enthusiastic co-operation, maintain good morale, obtain their respect and confidence. The "test of the pudding is the eating," and a man soon acquires a definite reputation with respect to his attitude towards others.

Education and training: A statement of early schooling, plus previous positions held, plus books read, will tell the story clearly, although added light is shed on the question by the way he understands and carries out instructions.

So the necessary information can be obtained by observation of the individual over an extended period of time, and under various conditions. It is worthy of note that a man shows his real character more clearly at play than at work.

Long-continued observation of candidates and careful records of their traits of character should be the best guide in the selection of officers. So far as known, this method is not now in general use on any railroad, although it has been used in at least one department of one railroad. It has also been used in the army and in some industrial plants.

Method 2

When our army was mobilized during the World War, it was desired to learn quickly all possible about the character of the men and officers. Psychologists were called in and devised a series of tests, called intelligence or mental tests, and with them the individuals of the army were measured. The principle behind these tests is to put the individual under microscopic observation—have him do a variety of things in a short space of time and record his alertness. These tests consist of graded problems in arithmetic, of supplying missing words in phrases, of stating whether a number of statements are true or false, of defining words in a selected list, of recognizing proper names of men and places. The results were rated and it was found that this was a fairly accurate method of measuring intelligence. Those who stood highest were given the most responsibility; those who were most deficient were not sent overseas. These tests can be given candidates for promotion and are probably the most accurate method of measuring intelligence.

This method is now used in most colleges, many high schools and some industrial plants. Psychologists claim these tests are reliable within 20 per cent and by them it can be foretold how far a student can go in college.

You will note these tests are for intelligence only and do not cover temperament or education. Educational tests are common and are in use now for the promotion of firemen to engineers, and brakemen to conductors. They can be devised to fill any need if thought advisable.

More recently will-temperament tests have been devised by Dr. Downey. The candidate is made to work under stress, by having his attention distracted elsewhere, by being made to hurry and again to go slowly. The quantity and quality of written work he produces under various conditions are measured and he is rated accordingly on speed of action, aggressiveness and carefulness. These tests are not yet in general use, and as now given, much depends on the efficiency and methods of the instructor in charge. There is no doubt that they will later become more reliable and useful.

The objection to all tests is that they are laboratory methods and consume considerable time and must be handled by experts in their special fields, although a simple intelligence (mental) test can be given by anyone familiar with the method. The writer has found that a very simple test can be given with good results.

Method 3

The third method uses trained powers of observation and is predicated on the fact that people show themselves by their actions and their structure. Prize cattle, dogs, cats are judged by their size and appearance; grapefruit are graded accurately in packing-houses by their external appearance and shape.

In chemistry we learned that carbolic acid, honey, butter, molasses and oil of peppermint are all composed of but three elements, oxygen, hydrogen and carbon. But there are different percentages of each element in each of these substances, and each substance is totally unlike each of the three elements composing it and unlike each other. In the same way all men have the same elements in their make-up, but in varying proportions, and their traits of character can be told by a close observation of their elementary characteristics. Men have all qualities to some degree—none are absolutely deficient in any trait. Such characteristics are usually divided into nine groups, viz.: color, form (or profile), size, structure, texture, consistency (or degree of hardness), and proportion, these seven being largely the result of inheritance; and expression (or behavior) and physical condition, these last two being largely the result of environment. All these must be observed and considered in each person if a reliable analysis is to be made. No single characteristic is sufficient upon which to base a conclusion.

We all unconsciously size-up people when we meet them. We are all familiar with the high brows and lean cheeks of the scholar, the high, large nose of courage and aggressiveness, the thick neck and thick lips of sensuality, the thin lips and cold eye of cruelty, the round face and full figure of good nature, the long legs of a runner and the prominent jaw of a boxer. A careful study of human nature, including the reading of books and intelligent observation of men and women, adds greatly to this intuition. Contrary to some popular ideas, this has nothing to do with astrology, phrenology, palmistry or fortune-telling.

In this as in other sciences—"a little knowledge is a dangerous thing," and the novice is likely to jump at conclusions too readily. It takes long study and practice to make one an expert in analysis. This is a short-cut method and uses the telltale marks which one's character leaves on his person. In the hands of an expert, it is reliable and accurate. It is used by many industrial plants in the employment of men. It has a further advantage of teaching much of human beings that can be used in everyday contacts with employees, associates and the public. Under this method the intelligence, temperament and physical qualities of a candidate can be closely estimated, even without any previous knowledge. A trained observer can make an intelligent analysis in a very few minutes.

Conclusions

Which of these three methods is the best? In brief: Method 1 is recommended because it should be the most accurate, supplemented, however, by the intelligence test of Method 2, and by a knowledge of Method 3. Any method that makes one study the candidates is better than no method.

It is an interesting trait of human nature that men often condemn anything they do not know about. No supervising officer can afford to take narrow viewpoints. The proper handling of men is his profession and he should be of an open mind and use all newly developed scientific information in a practical, sensible way.

When he knows his own shortcomings, as well as his good points, he will know how to make the most of them.

If we are to promote only the 25 per cent who are the most fit, it behooves us to learn all we can about human beings in general and about the candidates in particular. Therefore, it is suggested that all three methods here outlined be used as a check on each other.

Nothing so far has been said about the *time* of selecting officers. We should not wait until a vacancy occurs before deciding on the most desirable candidate to fill it. Such delays often result in snap judgment. There is no reason why this investigation and observation should not be carried on currently so that no emergency will ever exist. There is no reason why candidates should not know they are in line for promotion and are being considered as understudies because it helps them in their work. A man inherits his physical structure, his intelligence, and his temperament but he can improve his health, his education, his disposition and his ability to handle men. In other words, he inherits capacity to learn and do but he acquires ability by training and education. When he knows that promotion will be based on merit alone, on his ratings, then he will do his best to make those ratings favorable. Without such inspiration only about 15 percent of all officers really try to advance by study and reading.

The investigation of references by employing officers culls out about 1½ percent of the applicants, about ½ percent fail to pass the eyesight test; about 5 percent fail to pass the physical test; a total of 7 percent are eliminated now—*at least* 25 percent should be.

We know that many men are hired who are below average. Therefore, it is recommended that Methods 2 and 3 be used so far as possible in determining the fitness of applicants for work. Industrial plants are using them now, perhaps that is one reason that it is said the quality of our men is deteriorating—we are getting the culls.

The results of better selection will not be apparent at once but in after years when the present new men are ready for promotion, a better selection will be possible. The character of the next generation of railroad officers will be determined by our present methods and efficiency. Knowing that the human element is the most important part of any organization, and that we are employing many new men each year, should we not do our utmost to handle our part intelligently? Should we not use every known safeguard to aid us in our judgment? Realizing that handling human beings is essentially our job, we should keep apace with these modern investigations, and put into general use any improved methods that will raise the standards of the railroad profession.

Report on Means of Securing Greater Efficiency from Locomotives

It has been demonstrated that the modern locomotive can continue in service 16 hours out of 24, if it is not permitted to cut out at an intermediate terminal. It generally requires about eight hours after an engine reaches the terminal to prepare it for the next trip, and, where a locomotive is not permitted to continue in service to the next terminal, it means decreased locomotive-miles per day. With the modern appliances there is no necessity of having fires cleaned or any work done on a locomotive before it reaches the final destination.

Freight engines can be operated successfully and economically, without change, for a distance of 200 miles, and passenger engines for a distance of 400 miles where proper coaling facilities are provided at intermediate points. It is necessary that a good grade of coal be furnished to the engines if these long runs are to be maintained.

Frequent inspection of locomotives by enginemen on the line is essential, especially during cold weather, when metals are more or less subject to defects due to changeable weather conditions. Many defects are developed by freezing weather conditions that can be discovered on close inspection, which, if permitted to go indefinitely without attention, will eventually develop serious conditions that may result in heavy expenditure and possibly, because of derailment, tying up traffic.

When an engine is ordered for a train at a certain time, the roundhouse foreman should consider the preparation of this engine a preferred duty and see that all concerned understand that the engine must be on the ready track on time. The on-time movement of a road crew starts with the on-time movement in the roundhouse, for a roundhouse delay usually results in a poor fire, disappointed enginemen and a late train.

Yard forces should, whenever possible, give preference to the movement of a locomotive passing through the yard preparatory to coupling to a train in making ready to leave on time. After the train line is charged and the train ready for departure, the yard forces should make way for its prompt departure, and when tonnage and grade conditions require, assist the departure of the train by pushing it out of the yard. All of the larger yards should be equipped with air and yard tracks should be of sufficient length so that trains will not have to double over.

Road trains should not be required to stop at switches when heading into terminals at final destination and yardmasters should so educate yard forces as to cause all switches, including those on the main line, to be lined up for a continuous non-stop movement to the track where the train is to arrive at its final stop location. Yard crews usually meet with a greater delay by holding road crews out of a yard than when efficient preparation is made and the arrival of the train is anticipated. It is also true that yard crews meet with as much, if not greater, delay waiting for heavy tonnage trains to pull out of the yard, the latter occupying the switching lead and thereby blocking a switch engine while the train pulls by. This is particularly true during cold weather, when equipment handles very hard, due to chilled or frozen lubricants.

In the interest of on-time departure from terminals, switch engines should be ready to assist trains out of the yard on time; to do this safely, yard leads and other tracks serving road train movements should be maintained in good condition for the speeds usually attained when pushing trains out of terminals. The on-time departure of a road train gives the dispatcher an opportunity to figure on the movement of opposing trains and as soon as such a practice is properly rooted and all concerned can depend on such yard operation the entire freight district involved will improve with respect to locomotive efficiency and reduction of fuel consumption.

Local way-freights on heavy local divisions should bunch through tonnage at stopping points for through-freight trains to pick up and move to terminals. A local way-freight hauling a heavy train usually requires considerable overtime.

Water facilities and coal supply stations should be closely inspected for the purpose of determining whether or not the maximum stream of water is available, and also to determine whether the coal supply is properly prepared and mechanical or other coal chutes in such condition as to place the coal on locomotives in the minimum time during favorable conditions. A standpipe furnishing a six-inch stream of water, where an eight-inch stream could be secured by increasing pipe capacity, means an increase in overtime and train delay and automatically reduces the efficiency of the locomotive, because the greater the length of time the locomotive stands, the greater the harm to the condition of fire, as well as the loss of engine miles.

Conservation in lubrication is advisable, although officers should be very careful when dealing with enginemen with respect to the use of oil, for it is agreed, we believe, that a little excess oil is preferable to not quite enough.

A signal to move a train or locomotive should not be given until all concerned are sure that all preliminary work necessary to the starting of the train has been completed. To start a train and immediately afterwards someone finds that it is necessary to stop, greatly interferes with the engine crew, has a detrimental effect on the fire and also causes more or less confusion and delay to yard and road crews.

Do not permit engines to slip. A close inspection of sand boxes and sand pipes at terminals by enginemen, when possible, will reduce slipping of locomotives to a minimum. The slipping of a locomotive at times will tear holes in the fire and such a condition frequently contributes to engine failures.

Committee:—S. P. Henderson, chairman, superintendent, C. & A., Bloomington, Ill.; J. M. Flanigan, superintendent terminals, St. L.-S. F., Kansas City, Mo.; J. M. Reines, trainmaster, C. G. W., Stockton, Ill.; C. Forrester, superintendent, C. N., London, Ont.; F. O. Coleman, superintendent, M. & St. L., Oskaloosa, Ia.; W. H. Wright, general agent, C. of Ga., Savannah, Ga.; and L. J. Ferritor, superintendent, Wabash, Buffalo, N. Y.

Report on Daily Data for the Superintendent

The committee feels that all that is necessary is a brief, to the point, morning report that will give the superintendent and other division officers a fairly accurate figure of the operation of the division for the preceding 24 hours and the figures for the corresponding 24 hours of the previous month and year. Such a report should contain a record of movement of all passenger trains, with explanations for delays; also, a report of freight trains run on each district, indicating the number of trains run, number of tons handled per train, average number of tons per train, increase or decrease in tonnage cost per thousand gross ton miles, and weather conditions. There should also be included reports from the various yardmasters, indicating the number of engines worked, cars handled, straight time, wages, overtime and cost per car.

It is apparent to this committee that each railroad has developed its individual daily reports covering the movement of passenger and freight trains, cars in yards, at junction points and principal stations, cars on hand, cars moved, engines used and engines available, interchange reports, etc., and that, therefore, it is difficult to suggest any innovations along this line.

As a matter of fact any report that this committee might make would largely be a repetition of the report submitted at the meeting last year, in which it was suggested that the daily report to the superintendent should cover the following:

Passenger trains—on time.
Passenger trains—late, and why.
Number of freight trains run out of each terminal (divided between slow and fast freight)—with full tonnage, with reduced tonnage, and cause of reduction.
Weather conditions at time of making report.
Weather conditions during past 12 hours.
Cars—in yards, at junction and principal stations.
Cars—on hand.
Cars—moved.
Engines used.
Engines available.
Engines held in roundhouse (to be made available within 12 hours).

An interchange report should be compiled daily as of 12:00 midnight, showing:

Cars received from—loads—empties.
Cars delivered to—loads—empties.
Cars on hand awaiting delivery.

Committee:—G. A. Holmes, chairman, superintendent, C. & N. W., Norfolk, Neb.; E. J. Devans, general superintendent, B. R. & P., DuBois, Pa.; C. E. Lanham, superintendent transportation, G. M. & N., Mobile, Ala.; E. C. Bullard, assistant to receiver, K. O. & G., Muskogee, Okla.; W. H. Johnson, superintendent terminals, N. & W., Norfolk, Va.; F. W. Curtis, superintendent, M. St. P. & S. Ste. M., Minneapolis, Minn.; A. J. Connolly, superintendent, Union Freight, Boston, Mass.; H. S. Fairbanks, superintendent, S. P., Tucson, Ariz.; L. W. Berry, superintendent, N. Y. & L. B., Long Branch, N. J.; Raphael Acosta, superintendent car service, N. Ry. of Mex., Mexico City, Mex.; G. G. Derby, superintendent, A. T. & S. F., Chanute, Kan.; A. B. McNaughton, superintendent, C. N., Richmond, Que.; H. R. Saunders, superintendent, C. R. I. & P., Chicago; and J. D. Bell, superintendent, C. C. C. & St. L., Cleveland, O.

Discussion

This report led to active discussion regarding the value of daily reports of the cost of train operation and the possibility of having this information available on the day following. D. Crombie (C. N. R.) pointed out that it is possible to secure such information, the only question being whether it is worth while. C. B. Pratt (C. R. I. & P.) and G. P. Brock (G. M. & N.) described the methods by which this data is developed on their roads. On the Rock Island the tonnage is taken from the dispatchers' reports and incorporated in cost sheets which are distributed to staff daily and form subject of conference with staff twice a month. J. M. Walsh (I. C.) stated that on his road it was found unnecessary to compile daily reports but reports are now made for ten-day periods, available four or five days after the closing of the period.

The Operation of Trains on Single Track Under the Protection of Automatic Block Signals

Henry M. Sperry, consulting signal engineer, New York, presented an address on the signal aspects for different track conditions, illustrated by lantern slides. This paper was suggested by a request from a railroad for information to be used in instructing its trainmen in single track operation under automatic block signals. This road was making its first installation of automatic block signals to replace manual block signals on 250 miles of single track line.

To comply with this request four large diagrams were made to illustrate the movement of trains and the operation of the signals for (1) opposing train movements; (2) following train movements; (3) train movements from lap sidings; and (4) train movements through an interlocked crossing.

Each diagram was arranged to show in progressive steps the movement of the trains and the changes in the indications of the color light signals governing and protecting the train movements. The signal were colored red, yellow and green for the indications "stop," "approach" and "clear." To facilitate the reading of the diagrams they were made 34 in. wide and 25½ in. high. This large size permitted showing the signals nearly 1½ in. in size, thus making their indications easy to read. The advantages of the large size diagrams over the usual small scale diagrams were plainly apparent. A description was furnished with each diagram in explanation of the train movements and the progressive changes in the signal indications of the color light signals.

The railroad issued the usual book of automatic block signal and interlocking rules, and also instructions "providing for the use of the '19' order as a restricting order in automatic block signaling territory." Under the manual block signals the "31" train order was used, and not the "19," to restrict train rights. The four signal diagrams previously described were used by the road as part of its instruction program.

The diagrams were so favorably received that it is believed that superintendents who are constantly facing the problem of instructing trainmen will be interested, not only in the diagrams for instruction purposes but also in the protection and facility provided in single track operation by automatic block signals that the diagrams illustrate.

The semaphore is a position signal by day and a light signal by night. Light signals, on the other hand, of both the color and the position types, display the same aspects day and night, one using colored lights and the other pale yellow lights arranged in rows corresponding with the positions of the semaphore signal. A fourth type of light signal has recently been developed that shows both color and position aspects. One marked advantage of all light signals is that they permit a great simplification of signal aspects. For example, position light signals as now in use are a fine exhibit of simplified aspects and point the way to a simplification of color light aspects. Color position light signals are also a move toward simplified signal aspects.

The basis of automatic block signaling is the track circuit. The track circuit operates on the closed circuit principle; that is, the circuit from the battery or other source of power must be complete to energize the relay and so close the circuit. Any interruption in the circuit due to a defect in the battery or power supply, a broken wire, a broken rail, an open switch, or a train in the block, will de-energize the relay and cause it to open the circuit controlling the signal. From this it follows that the track circuit provides a constant check on the integrity of the conditions in each block section. The automatic block system with continuous track circuits is the only system in which the train itself controls the signals protecting its movement.

In concluding his address Mr. Sperry quoted at length from the 1926 report of the Committee on Economics of Railway Operation of the American Engineering Association on the use of automatic block signals as a means for increasing the track capacity of a railway, which conclusions were published in the *Railway Age* of March 12, 1925, page 673.

Report on Overcoming the Cross-Haul Movement of Empty Cars

A terminal company that has an arbitrary reclaim per diem allowance for cars handled to and from industries is going to hold the cars, if necessary, up to their arbitrary reclaim allowance so that they may save expense in handling. Another feature that enters into this is that these strictly switching terminal companies do not care much from a competitive basis as to the time needed to set a car after ordered. The question of per diem is an important item to the road haul carriers which also have industries, and sometimes many of them on their rails, and they figure that by rushing the empties home and ordering from the prospective road haul carrier as they receive orders from industries, they save more per diem than their cost of switching. This is the real problem and our investigation shows clearly that it is an individual problem.

As a competitive proposition, the roads are generally anxious to satisfy the industry, and if they have several yards, probably widely scattered, and attempt to locate a car to fit a certain order from their last yard check, a majority contend that the expense of finding the car and getting it in reverse movement back to the industry is greater than the cost of letting the car go home as originally carded. We find in actual practice that this same road haul line will not hold foreign empties for prospective loading. Of course, when furnishing the cars for large industries, such as elevators, flour mills, steel mills, and those handling many cars a day, the switching line generally has some kind of an advance line up so that it is able to reduce its cross-haul movement to the minimum.

Another feature that has made switching carriers wary of furnishing cars from pick ups on their rails is the responsibility for damage to the lading as provided for in the Freight Claim rules. Also, the Freight Claim rules are such that when the cars are furnished by a prospective road haul line the switching line has a part of the responsibility; thus the different standards of the two railroads enter into it, and not the least by any means, the difference of opinion of the different car inspectors as to the fitness of a car for the commodity furnished.

In order to meet this situation in one large terminal, the superintendents' association conferred with the Committee of Direction of the Freight Claim division, A. R. A., and adopted the following rule, which has decreased the cross-haul, or double furnishing of empties by about 98 per cent. We recommend the adoption of this rule to overcome the trouble complained of at all terminals:

When empties are ordered for loading at an industry, the industry line shall state what commodity is to be loaded in the car.

The line from whom the empty is ordered shall inspect the car and keep a record of such inspection as provided in that part of present Freight Claim division, A. R. A., rule 64 "A," which reads as follows:

> Carrier furnishing the equipment shall keep a permanent record showing where the car was inspected, the name of the person making the inspection, the condition of the car and the extent of the inspection at the time of such inspection.

The road haul line from which the empty is ordered shall be responsible for damage to the contents of the car which is caused by the condition of the car, provided the car is returned to them loaded with the commodity ordered for and in the same condition as when furnished the industry line empty.

If the car is not returned loaded to the line furnishing it, but is allowed to be loaded out on the industry line, or if the industry line permits the industry to load the car for any other line than the one originally furnishing the empty, then the responsibility shall rest with the line with which the order was placed, that is, the industry line.

The Unnecessary Transfer of Cars at Interchange Points

We recommend that the transferring be done by the car department, because if the foreman of the car department has to spend his company's money to transfer the car for which he will get no return, he will spend a portion of that money in repairing the car, because he will often be able to make some profit thereon, as he can, under the rules, charge the expense of these repairs to the car owner.

We recommend that the rules be made so that the cost of transferring the car cannot be collected unless the defects for which the transfer is made are repaired after the car is empty, except in cases where the proper material is not obtainable at the point of transfer, the joint arbitrator or inspector to be the judge.

We recommend that the rules be changed so that per diem will not begin on the car held for proper material until the material is received instead of at present when it is shipped. Because a defect is an owner's responsibility, and about 85 per cent of the repairs show that it is, it should be the owner's obligation to get the material to his car to repair it. This rule would be an incentive to rush the getting of cars into service and to keep cars in proper repair.

There is a considerable difference of opinion as to whether the present prices allowed under the rules do not work to the detriment of foreign equipment; that is, no foreman is going to spend his company's money to repair cars that he is not interested in, where he is only swapping dollars, or, as it is claimed by some, where he is losing money. No commercial concern will work without seeing a profit. The theory of the present rules is that a large proportion of the owners are in the transportation business and it works reciprocally. This may, or may not be true, according to the ownership, but if the car owner could see it properly, finally he would be the one to profit if his cars were kept in perfect condition 365 days a year. Hence, we recommend that where a car must be repaired or transferred before the lading can be forwarded, if the repairs are made under load, an increased allowance of 50 per cent over present prices be made, and 20 per cent be made for repairs of an empty that has to be transferred to repair, provided the repairs are made at the transfer point. We feel that this will offset any slackness that might develop in lines having poor equipment, permitting their cars to run and go to foreign rails in an unfit condition.

We recommend that the association endorse the above suggestions and that they be referred to the Operating division of the A. R. A. for their investigation, and if endorsed, that they then be passed to the Mechanical division, thus giving the recommendations all the prestige it is possible for them to have before being handled by the court of last resort.

Committee:—A. G. Peck, chairman, general agent, M.K.-T., Kansas City, Mo.; E. F. Ryan, terminal superintendent, B. R. & P., Buffalo, N. Y.; J. J. O'Brien, superintendent car department, T. R. R. A. of St. L., St. Louis, Mo.; J. S. Cox, superintendent, N. S., Raleigh, N. C.; P. F. McManus, general superintendent, E. J. & E., Joliet, Ill.; F. M. Barker, superintendent, L. V., Buffalo, N. Y.; A. D. Edgar, superintendent, C. R.R. of N. J., Jersey City, N. J.; G. A. Stokes, superintendent terminals, C. N., Toronto, Ont.; E. E. Cain, assistant to president and general manager, P. M., Detroit, Mich.; J. D. Bell, superintendent, C. C. C. & St. L., Cleveland, Ohio; L. Podesta, superintendent, C. J., Chicago; and C. P. Chambers, superintendent terminals, Sou., New Orleans, La.

Minority Report

My thought regarding the A. R. A. rule covering the transferring of cars is that it should remain as it now is. Namely, the receiving line to run, repair or transfer lading. I am, therefore, submitting the following minority report:

First exception: Receiving line to stand cost of transfer and any claims caused by the transfer.

Second exception: Receiving line to be permitted to reclaim on delivering line for all per diem accruing while the car is in the possession of the receiving line, while being transferred, including one day necessary to return the car to the delivering line. If it is necessary to repair the car before its return to the delivering line and material is needed and has to be furnished by the owners, per diem on the car will stop automatically on the date the car is received until the material is received and the car repaired and returned to the delivering line, allowing the required time only to make repairs after the material is received and one day to make delivery of the car to the line received from.

C. P. CHAMBERS, Superintendent, Sou., New Orleans, La.

Report on the Desirability of Increasing the Carload

A definite program should be worked out, preferably between the various regional advisory boards and the railroads, for eliminating the objections that the shippers now present toward loading equipment to maximum capacity. The mere fact that tariff conditions permit inefficient loading of equipment should not deter the effort to eliminating that objectionable feature.

It is a well-known fact that one of the worst classes of traffic that reduces the average carload is the business controlled primarily by the railroads themselves; that is, the less-carload merchandise. The statement is made by the Car Service Division that merchandise service requires between 25 and 30 per cent of all freight equipment. Except in some parts of the country it is rarely the case that merchandise cars are loaded heavier than 10,000 lb. Considering the fact that the car which is carrying this light load has a carrying capacity of at least 80,000 lb., there is little reason to wonder at the loss that is obtaining. Pool car companies have pointed out the way for this business to be handled, for the tonnage per car regularly handled by pool car companies is double that which is handled by the railroad companies between the same distributing centers,

with a minimum of claims on the part of the pool company by damage or other cause.

The distribution of merchandise has changed materially in the last four or five years. To meet this change the most progressive railroads have entered into the motor truck business as an adjunct to their distribution of l.c.l. merchandise. This new arrangement should offer the greatest opportunity to reduce the number of light merchandise cars that heretofore have moved to local points.

We wish to emphasize the fact that immediate action should be taken whereby the shippers and railroads can meet on a common ground with the idea of increasing the carload minimum in the various tariff classifications. It is our suggestion that a campaign be started at once with all shippers with the point in mind of showing what advantages there would be to the consignee or consignor from a proper increase in carload minimums; that there should be continued co-operation between the railroads, regional advisory boards and the shippers themselves on effecting loading that will increase the present average.

Schedule Handling of Package Freight

Package cars should be operated on a definite schedule, advertised to the public, and freight solicited by soliciting agents on the information that l.c.l. freight received at certain freight houses up to a certain closing hour, will be delivered at destination at a stated time. In considering this question there are two classes of package cars to be considered; (1) the long haul package car; and (2) the short haul. Package car business, it has been stated, serves more customers than any other one class of freight, and consequently, good package car service will cause more favorable comment and approval from shippers and consignees, while on the other hand, poor package car service will cause more dissatisfied citizens with the railroad than any other one thing.

It has been found that the package car, on the set-out schedule by the daily merchandise train, has met with extreme success. In many instances it is necessary to haul these cars past their final destination a few miles in order that they may be handled back the following morning by a local train in the opposite direction, thus reaching their destination in time for the early morning delivery. This is necessary due to the fast schedules that it is necessary to maintain with the merchandise trains in the opposite direction, and the time of setting out and placing cannot be lost and the schedule maintained. Package cars must be scheduled to arrive at junction points with connecting lines in order that they will receive movement from such junction points at the earliest possible hour after delivery has been made, in order to carry out the general plan.

The committee considers the factors governing the successful handling of package freight to be: Complete organization, from the start at the shippers' warehouse through to delivery of the package at destination; definite schedules for movement, carefully prepared to meet varied conditions, and rigidly maintained; a full acquaintance with or knowledge of the schedules on the part of the public. In the interest of further improvements in service and economies in operation the committee recommends: That further consideration be given to the plan of loading package freight, or l.c.l., to break bulk districts, from which it can be distributed by trucks to the carriers' warehouses within the assigned territory for final delivery to consignee.

Committee:—E. P. Laird, chairman, superintendent, A. C. L., Richmond, Va.; F. N. Reynolds, assistant general superintent, C. C. C. & St. L., Indianapolis, Ind.; C. B. Petticrew, superintendent, St. L. S. W., Pine Bluff, Ark.; J. W. Knightlinger, superintendent, T. & P., Fort Worth, Tex.; George Masten, superintendent, Va., Victoria, Va.; C. S. Falconer, member, Rules Committee, C. & O., Hinton, W. Va.; W. J. Hills, superintendent, N. C. & St. L. Paducah, Ky.; K. W. Fischer, assistant superintendent, C. B. & Q., St. Paul, Minn.; J. W. Kreitter, superintendent, D. M. & N., Proctor, Minn.; E. C. Bagwell, general superintendent, S. A. L., Jacksonville, Fla.; F. O. Whiteman, superintendent, E. St. L. & S., St. Louis, Mo.; and W. C. Deegan, trainmaster, B. & O., Weston, W. Va.

Information for Traveling Public When Schedules Are Disarranged

Suggestions were made to the committee, based upon practices in effect at certain large terminals, that the public should be given information through civic bureaus, chambers of commerce, clubs, hotels, taxicab officers, etc., but the members of this committee recommend against this being done, and officers of a number of large terminals, who were asked to express their opinion, are also opposed to such a plan. It is recommended, however, by this committee that information be given freely and fully to the newspapers by railroad officers so that the public may have the benefit thereof.

In emergencies the committee is advised that the large terminals invariably supplement their regular forces by calling upon those employees who have been used previously in work connected with the bureau of information and by installing additional telephones, are able to answer inquiries from the public with reasonable promptness. Additional forces are also mobilized to supplement the employees assigned to blackboards or in and around the station or concourse. Barring storms, which may completely interrupt the wire service, the regular and auxiliary forces are able to meet the situation without serious complaint from the public.

Rough Handling and Unlocated Damage

This committee joined with a similar committee of the Freight Claim division, A. R. A., in a study of rough handling. The following is an abstract of the joint report:

Rough handling and unlocated damage in 1925 totaled $16,048,851 or 41.4 per cent of the total loss and damage bill of American railroads (which last year was $38,772,097). The last available figures show that the freight train car repair bill for Class 1 railroads was $380,925,000. An analysis made by one railroad indicated that three per cent of the cost of car repairs was the direct result of rough handling. Accepting this figure as a fair estimate, it would add approximately ten million dollars to the possible saving by a reduction in so-called rough handling.

This committee calls attention to the interline character of any effort to control so-called rough handling, since most freight moves over two or more railroads. The best opportunity for interline co-operation will be found at points entered by two or more railroads, when the railroads at such points jointly conduct meetings or use other methods for the purpose of interesting men in this subject.

In the St. Louis-East St. Louis terminal district the superintendents' association appointed a working committee selected from the traveling forces of member carriers, each of which tendered the use of one or more impact recorders. The working committee used these recorders within the terminal for a period of 30 days, placing them in cars which moved to and from such points as would traverse all the lines within the terminal district. At the end of this period the result was tabulated for the information of members, following which a mass meeting of employees was held for a discussion of the question.

In the Southeast two territorial mass meetings were called and a committee representing all lines appointed. This committee visited various yards and addressed the employees, following which committees were formed in a number of the larger terminals. These committees were composed of representatives of each road entering the terminal and were to study the problem, maintain interest in their particular locality and report to the larger committee. In Chicago, moving pictures, available through the Freight Claim division, A. R. A., were shown to employees in a number of the yards.

Committee:—F. W. Brown, chairman, assistant to general manager, A. C. L., Wilmington, N. C.; C. E. Brower, general superintendent transportation, A. B. & A., Atlanta, Ga.; A. S. Bergschneider, superintendent transportation, I. T. S., Springfield, Ill.; A. C. Showalter, general superintendent, N. Y. C. & St. L., Cleveland, Ohio; J. K. Gray, general superintendent, C. S. S. & S. B., Michigan City, Ind.; T. M. Flynn, assistant to general superintendent, N. P., St. Paul, Minn.; O. J. Brown, superintendent terminals, I. & G. N., Houston, Tex.; R. S. Richardson, superintendent, C. N., Fort Williams, Ont.; C. A. Clements, superintendent terminals, M. P., St. Louis, Mo.; J. R. Mann, superintendent transportation, D. & T. S. L., Detroit, Mich.; and L. R. Smith, assistant superintendent, S. P., Stockton, Cal.

Report on Organization for Fuel Economy Campaign

A fuel economy program is analogous to a safety first campaign. The big factor in either endeavor is to arouse an interest, then create a desire with the individual, whether that person be an officer or otherwise employed.

In fixing an organization, the general mechanical officer should be the chairman of the general or system committee, for the reason that the design and maintenance of the locomotive bears such a strong relation to fuel conservation and because the locomotive boiler requires the use of more fuel than any other utility on the railroad. This committee should be composed of the chairman,

general supervisor fuel economy, assistant general supervisor fuel economy, supervisor fuel economy, supervisor power plants, officer in charge of the purchases and distribution of fuel, fuel inspectors, district officers in charge of the mechanical department, master mechanic, road foreman of equipment, general locomotive foreman, general roundhouse foreman and roundhouse foreman.

In addition to this general or system committee, a division committee should be formed, because it is on the divisions that the most effective work in this campaign can and must be done, where the individual employees will be reached. No matter how much good fuel or good equipment may be furnished, results will not be obtained without the interest and co-operation of everyone on the railroad who has to do with fuel consumption, either in a supervisory or working capacity, and here is where the real working organization lies. The division superintendent and his staff are responsible for exacting full performance of duty on the part of employees, and the attitude of mind toward the economical use of fuel on the part of the superintendent and his staff will be reflected in the employees. This division committee should be composed of the master mechanic, as chairman, superintendent, trainmaster, division engineer, chief dispatcher, general yardmaster, road foreman of equipment, general boiler foreman, general roundhouse foreman, locomotive engineer and locomotive fireman. The personnel of these committees, insofar as it is possible, should be carefully selected from practical men who are thoroughly familiar with the construction and the operation of locomotives.

The general supervisor of fuel economy should be a man of practical experience and have the additional qualification of technical knowledge of his work. The supervisors working under him should be practical men with knowledge to detect and correct defects, and should also be vested with such authority as is necessary to see that the corrections are made. Fuel inspectors should be men who are qualified to deal with mine operators and see that the railroad is being furnished with what it is paying for, both as to quality and amount of coal. The general supervisor of fuel economy and his staff should cover an entire system with as many supervisors and inspectors as are necessary. Each district on a system will have its place on the committee, the outline presented showing only one district; also, each division will have a separate committee as per the outline. These committees may be enlarged or reduced as conditions warrant, to meet on the call of the chairman.

It will be well to have open meetings where all employees will be invited to make suggestions and give their opinions. The train and engine men, coal chute men, mechanical men, track men, all will be in position to put much into the organization, and it is personal contact with men which really counts.

The first step and one of the most essential parts in this organization is to furnish good fuel. The second step is to see that locomotives and all their appurtenances are in the best possible mechanical condition. Heating plants, stationary boilers and fuel stations should be given frequent inspection and careful consideration to see that the distribution of heat, the consumption of fuel and the physical condition of such plants are up to standard.

Provision should be made for exact records of fuel purchased and consumed, the class of service for which used, etc. The committees should be in position to know at all times just how much fuel is used by both enginemen and engines on every trip. Details such as this will prove of inestimable value in the organization. Bulletins posted monthly showing the rank of men in the conservation of fuel will create a friendly rivalry among the men, which will be helpful.

Committee:—J. M. Hood, chairman, general superintendent, A. C. & Y., Akron, Ohio; H. T. Malcolmson, general manager, T. H. & B., Hamilton, Ont.; J. P. Falk, superintendent, C. B. & Q., Chicago; W. W. Houston, superintendent, H. V., Columbus, Ohio; N. A. Ryan, superintendent, C. M. & St. P., Terre Haute, Ind.; F. Wear, superintendent, G. N., Great Falls, Mont.; A. E. Boughner, superintendent terminals, M.-K.-T., St. Louis, Mo.; J. H. Owen, general superintendent transportation, F. E. C., St. Augustine, Fla.; G. W. Rourke, superintendent, C. R. I. & P., Kansas City, Mo.; R. E. Ryan, superintendent, M. & St. L., Minneapolis, Minn.; H. J. Curry, superintendent, B. & A., Springfield, Mass.; and P. E. Pfeiffer, superintendent, M. C., Chicago.

Freight Claim Division Meets at Norfolk

Reduction in loss and damage claims in 1925 *of* $9,490,446 *reported*

A REDUCTION of $9,490,446 in loss and damage claims in 1925 as compared with 1924 was reported by the committee on Freight Claim Prevention at the thirty-fifth annual conference of Division VII, Freight Claims, American Railway Association, which was held in Norfolk, Va., June 15-18. Charges for freight loss and damage last year were $38,772,097, compared with $48,262,543 in 1924.

The conference was largely attended, approximately 450 members and guests being present. A particularly large number of operating officers were present.

Address by R. H. Aishton

R. H. Aishton, president of the A. R. A. in his opening address said, in part:

My mind goes back to the problem that lay before you in 1921, and what you then faced—$120,000,000 paid out for claims for freight lost, damaged or stolen during the year 1920—and to your ambitious slogan at that time "Cut It In Half." The last time I met with your division you not only had cut it in half but you had cut in to $48,000,000 in the year previous to the meeting, 1923, and at that meeting you again reiterated the slogan "Cut It In Half." I think in my talk to you I added to the slogan the words "It Can Be Done," and now I am here at your meeting of 1926 and I find that you have already made a reduction of $12,000,000 towards your "Cut It In Half" program.

Outside of the money involved, I think there is a feature in connection with this work that is of even more value than the money involved and even more important to the railroads, and that is the improvement in public relations that you have so well helped establish. Your organization was one of the pioneers in this line of work, through your establishment of points of contact with national commercial organizations, such as the National Industrial Traffic League, the American Fruit and Vegetable Shippers' Association, as well as with territorial trade organizations. Through your Freight Claim Conferences throughout the country, cooperation has been effected with shipping organizations in every territory regarding claim and prevention matters. You have done yeoman service on work parallel with the lines so successfully established through the Regional Advisory Boards, and their contact with the railroads and with the Car Service Division regarding car service matters.

One of the big factors in the better public relations now existing is not only the record that has been made in amounts, but also in this matter of prompt settlement of claims. In addition, for the first time in five years, the last two months of 1925 reported 90 percent of all claims settled within 90 days. The good will established by such a record is of untold value.

Claim prevention, when you come right down to it, is a question of salesmanship. Your division and the officers in charge of this work on the individual railroads should keep very definitely in their mind that the duty of preventing loss and damage rests largely with those in other departments, but that the obligation is on the claim men to point out the causes. You men in this organization have a wonderful enthusiasm on this subject. Keep it up, keep up your contacts with all these various organizations you have contacts with now, establish new contacts and above all see that you fulfill your obligation by pointing out in a clear and definite way to those who have a hand in the matter of freight claims, whether they be shippers or whether they be your fellow railroad officers and men, what the causes of loss and damage are. Point out also the way wherein they may be helpful to you, and you

to them. If you do this, in other words if you sell your stuff, you won't have to worry about what the record for 1927 will show.

Address of the Chairman

C. H. Dietrich, chairman of the Freight Claims Division, congratuated the members on the record made last year. His remarks are abstracted below.

From the standpoint of claim prevention, I feel that the record established for the year ending December 31, 1925, is one that every prevention officer, freight claim agent and those interested in this work, may well be proud of, for, with the record traffic of more than 51,000,000 carloads, representing a gross freight revenue of $4,546,670,891, the amount charged to loss and damage freight reached the relatively small amount of $36,760,941, a ratio of loss and damage to freight revenue of 0.81 per cent. This reflects a situation that even the most optimistic scarcely dreamed possible a few years ago and I have faith enough in the ability of the men behind this campaign to not only believe, but feel confident, that the goal of one-half of one per cent is just around the corner. The Canadian lines alone show a ratio for 1925 of 0.70 per cent.

Second only in importance to the reduction of our Loss and Damage Account 418 is the marked improvement shown from month to month in the promptness with which our loss and damage claims are being adjusted. Not only are great strides being made in the prompt adjustment of claims between the carrier and claimant, but likewise the claims in suspense are being distributed more rapidly and with less controversy than ever before in the history of our organization. This statement is easily verified by referring to the secretary's record for 1925, which indicates that 69.9 per cent of all claims filed by claimants were adjusted within thirty days and 88.7 per cent within ninety days. The amount carried in suspense by all lines on December 31, 1925 was only $3,185,666, as compared to $11,000,000 in 1921. This record is truly remarkable, and I am satisfied that in this accomplishment of adjusting 88.7 per cent of all claims filed within 90 days from the time they were presented, the freight claim agents of this country and Canada have removed one of the outstanding causes for criticism against the railroads on the part of the shipping public and incidentally, they have accomplished their full share in the general program of improving the relationship between the public and the railroads.

The outstanding feature of the year just past, has been an increased and closer harmony of effort between our freight claim and prevention officers and the traffic representatives of the shipping and receiving public. This idea has been exemplified by practically every claim conference throughout the country in their joint meetings with traffic clubs, chambers of commerce and other similar organizations, by our claim prevention committee, through the growing list of shippers' and receivers' organizations, with which they have established contact, and by the general committee through the setting up of a joint committee, representing 20 perishable carrying lines and 20 representative fruit and vegetable industries.

The first day's session was "Prevention Day" and was featured by addresses by W. J. Jenks, vice-president in charge of operation, Norfolk & Western; F. P. Pelter, vice-president and general manager, Norfolk Southern; and G. D. Brooke, assistant to vice-president in charge of operation, Chesapeake & Ohio.

Report on Committee on Claim Prevention

The report of the committee on Freight Claim Prevention is abstracted below.

In presenting report of the committee on Freight Claim Prevention for the year 1925, it is pleasing to record that freight loss and damage continues to show a substantial decrease.

In addition to the monetary reduction, the record of claims presented, claims under investigation and the paid claims in suspense as between carriers, shows a corresponding improvement as follows:

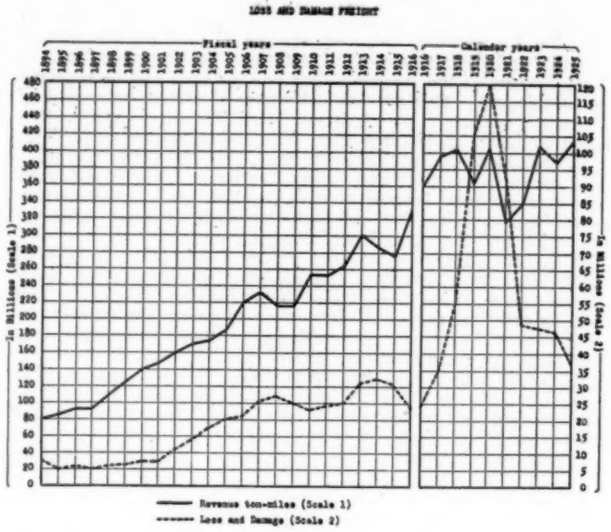
	1924	1925
Number claims presented	2,498,790	2,380,823
Number claims under investigation at end of year	226,566	204,962
Amount in suspense account at end of year	$3,614,572	$3,185,666

In reviewing the accomplishments for the year, as reflected in the statistical data, the record is one of which all departments may be proud, but special mention is made of the fact that more than a third of the total reduction arises from improvement in one cause, delay for which operating and transportation departments deserve special credit.

The percentage chargeable to l.c.l. freight continues to decrease, having dropped from 39.5 per cent of the total in 1921 to 26.8 per cent in 1925. This impresses more forcefully the fact that carload items, particularly damage, present the larger field for future activities.

Claims on sewer pipe and other clay products (including payments on cement, lime, plaster and their products) aggregated $1,500,000, exceeding any year since 1921. While this may be partly due to increased production, it is a fact that less progress has been made with this problem than any other.

A committee of the traffic, transportation, mechanical and freight claim divisions, A. R. A., has been organized to co-operate with the trade in conducting tests, under commercial movement, to determine whether clay products can be loaded to carry more



safely and, if so, to agree with the trade upon changes in the loading rules of the consolidated freight classification.

While it is important that the utmost efforts be made to improve loading methods, your committee believes that the greatest economies can be effected by carriers devoting more attention to destination inspection.

Damage to carload freight, including delay, represents 63.6 per cent of the total loss and damage.

The causes contributing to carload damage have been the most stubborn with which the carriers have had to contend. Heretofore carriers have been devoting the major part of their efforts in educating their employes toward reducing damage arising out of causes controlled by them.

To secure definite results, the carriers should now devote to the shipping public the same educational effort heretofore devoted to their own employes. The effort to interest the shipping public should be directed to better packing, containers, loading, stowing and bracing, and the better handling of freight, both at shipping point and at destination.

One of the outstanding developments of the year was the intro-

CHARGES TO LOSS AND DAMAGE—FREIGHT

For the year ended December 31, 1924	$48,262,543.00
For the year ended December 31, 1925	38,772,097.00
Decrease	$9,490,446.00

Causes—	1924	1925	Reduction amount	Per cent
Rough handling	$9,584,984	$9,079,731	$505,253	5.3
Unlocated damage	8,273,312	6,969,120	1,304,192	15.8
Delay	7,607,597	4,365,009	3,242,588	42.6
Defective equipment	4,287,050	3,569,194	717,856	16.7
Wreck	3,073,168	2,694,388	378,780	12.3
Loss entire package	3,370,467	2,379,206	991,261	29.4
Other unlocated loss	2,597,173	2,136,246	460,927	17.7
Concealed damage	2,148,475	2,110,787	37,688	1.8
Improper refrg. and ventila'n.	1,307,670	917,588	390,082	29.8
Robbery entire package	1,253,611	838,411	415,200	33.1
Other robbery	1,079,782	654,040	425,742	39.4
Error of employee	1,064,146	926,505	137,641	12.9
Freezing or heater failure	943,823	795,190	148,633	15.7
Improper handling, loading, stowing	939,716	805,779	133,937	14.3
Concealed loss	504,784	322,270	182,514	36.2
Fire	226,785	208,633	18,152	8.0
Carload	$34,530,872	$28,395,708	$6,135,164	17.8
Less carload	13,731,671	10,376,389	3,355,282	24.4
Total	$48,262,543	$38,772,097	$9,490,446	19.7

duction by the Western Weighing & Inspection Bureau of a plan for bracing or binding carload commodities into units by the use of wire or strap. In co-operation with the wire and strap manufacturers, the bureau has conducted loading tests on many hundreds of cars, the out-turn of which indicates that the plan is feasible with certain commodities. As compared to wood bracing, the cost is much less and should result in considerable saving, both to shippers and carriers.

The reduction of over three million dollars in delay is much more significant than appears on the surface, since delay influences many other items in the loss and damage account.

Delay accounts for 11.3 per cent of the total 1925 loss and damage bill, compared with 15.8 per cent in 1924. Practically all the reduction in delay applies to the fresh fruit and vegetable traffic. This item can be further reduced by adopting special plans on individual roads to direct the attention of each class of employe in station, yard and train service to this particular traffic, to the end that nothing be done to throw a car of such traffic out of line and everything possible be done to keep it moving. It is the isolated car that gets into trouble that is now to be watched to bring further reductions.

Prompt and continuous movement of cars means good service and satisfied patrons, and results in less opportunity for damage, loss of entire packages, robbery, unlocated loss from cars, and refrigeration, ventilation and heater failures.

Your committee has taken advantage of every opportunity to participate in meetings sponsored by trade organizations for the purpose of keeping the public informed of what the carriers are doing in loss and damage prevention work; at the same time, soliciting the support of the shippers and consignees.

The freight claim conferences have been encouraged to sponsor similar activities and it is pleasing to record that many of the conferences now include meetings with the shipping public at frequent intervals.

Publicity given to the general activities in the railroad and industrial field by trade journals has been instrumental in creating a better understanding between the interests involved.

Other Reports

Other reports were presented at later sessions by the committees on Rules of Order, Loss and Damage Rules, Overcharge Rules, and the joint committee on Loss and Damage Rules and Overcharge Rules. The committee on Loss and Damage Rules recommended, in defining imperfect sealing, that end windows as well as end doors must be sealed, and that the same change be made as to the record of end window as well as end door seals.

The committee on Rules of Order recommended certain changes in the arbitration of claims invoving traffic or operating agreements to make the production of pertinent points of such agreements compulsory, except where agreements may provide for other arbitration or where a carrier involved may deem it inadvisable to make the terms of an agreement known. In cases such as these claims would not be arbitrated by the Freight Claim Division.

This committee also reported a letter recommending that "arbitrators give consideration to evidence of mechanical devices such as impact recorders and thermometer registers, when such evidence is submitted by two or more carriers, which conclusively indicates its use in connection with the certain claim presented for decision."

THE PORT OF NEW YORK AUTHORITY, the office of which is now at 75 West street, Manhattan, announces that work is soon to be begun on one of the bridges to be built by the Port Authority between Staten Island and New Jersey, and on one of the nine union freight terminals planned to be built in Manhattan. Plans have been made for the pooling of the lighterage business of New York Harbor, which engages the service of 1,700 vessels. It is hoped to do away with the antiquated methods of handling freight now prevailing in the water transportation of the port. The work of the Port Authority is said to be retarded by the refusal of the New Jersey Legislature to follow that of New York in giving the Port Authority the power of subpoena.

Hearings on Consolidation Bill

WASHINGTON, D. C.

ALFRED P. THOM, general counsel for the Association of Railway Executives, testified on June 11 and June 15 before the House committee on interstate and foreign commerce on the Parker railway consolidation bill. He read the resolution adopted by the executives' association favoring permissive consolidations if consolidation legislation is to be enacted and said he was not authorized to appear as an advocate of the bill, but that if there are to be railway consolidations a majority of the railway executives would want a bill of the kind passed.

Mr. Thom said that the acquisition of weak lines must be based on their commercial value and that it would not do to weaken the lines that are strong by the acquisition of other lines on a basis not justified, because the purpose of consolidation is to strengthen the transportation systems and not weaken them. Among the considerations which he assumed Congress had in mind in enacting the present law, Mr. Thom said, was that under the existing system shippers on strong lines were supporting weak lines by paying more in freight charges than they ought to have to pay, but that if the weak lines are taken in on a proper basis the rates could be made what they ought to be. Another consideration, he said, was that the transportation systems should be strengthened, so as to be dependable and adequate, with capacity to serve the business of the country. The shippers, he said, need a coordinated railroad service, and he pointed out how, if the lines were so grouped that a few men at the head of large systems would determine the transportation policies in a broad way, the actual management could be decentralized.

While the possibilities of economies to be effected by consolidation can be greatly exaggerated, Mr. Thom said, he pointed out several ways in which substantial economies might be effected.

Mr. Thom then discussed the law questions involved in consolidation, saying that Congress undoubtedly has the power to confer on corporations chartered by state authority power to engage in consolidations, even though no such authority was conferred by their charters and even though consolidation might be prohibited by state law or state constitutions. He said the fact is often lost sight of that federal law is part of the law of a state as well as its state statutes and constitution, and he referred to the Union Pacific as a conspicuous example of a system that is largely the product of powers conferred by Congress upon a corporation chartered by a state.

The chief provisions of the Parker bill were endorsed in testimony before the committee on June 8 by Elliott H. Goodwin, resident vice-president of the Chamber of Commerce of the United States, as being in accord with the position taken by the chamber as the result of referendum votes, and also by John E. Oldham, investment banker, of Boston, on June 9. Henry C. Hall of the Interstate Commerce Commission, and Ben B. Cain, vice-president of the American Short Line Railroad Association, also appeared before the committee for further questioning.

Members of the committee are not expecting that any action will be taken on the bill in the short time that remains before the close of the present session of Congress, but the hearings are being held as the foundation for possible action at the next session.

THE UNION PACIFIC has completed passing track extensions between Kansas City, Kan., and Topeka and train lengths in the territory have been increased from 80 cars to 100.

General News Department

At Crystal, Nev., on the Los Angeles Line of the Union Pacific, 369 miles east of Los Angeles, early on the morning of the 16th, a sleeping car of the Continental Limited, eastbound, took fire—cause not explained—and five passengers were burned to death.

C. F. Loweth, chief engineer of the Chicago, Milwaukee & St. Paul, and past president of the American Society of Civil Engineers, on June 10 had conferred upon him the degree of Doctor of Engineering by Rose Polytechnic Institute, Terre Haute, Ind.

The Interstate Commerce Commission has granted the petition of Leslie Craven, of counsel for the President's Conference Committee, Federal Valuation of the Railroads of the United States, for permission to intervene in the proceedings involving the ascertainment of excess income of the St. Louis & O'Fallon and the Manufacturers', for the purpose of being heard on oral argument as an *amicus curiae*.

The Pacific Railway Club (San Francisco) held its 109th meeting on June 5, at Sacramento, Cal., with an attendance of about 200. The principal speakers were J. J. Jordan (S. P.); W. W. Cunningham (Sacramento Northern); P. D. Barry (W. P.), and F. V. Swierski (S. P.). The audience was made up largely of men in the train service. The club plans to hold meetings in Sacramento three or four times a year, these in addition to the regular monthly meetings.

Impact Registers on Six Roads

To the list of roads given in the *Railway Age* of June 5, page 1484, using impact registers to make records automatically of the time at which freight cars receive violent shocks in switching, should be added the Erie, which reports satisfactory results from the use of these machines during the past few years, as do the other roads whose experience was reported. The Erie, however, uses the machine of the Impact Recorder Company, of Burlington, Iowa.

Canadian National Needs $31,000,000 from Public

In the estimate submitted to the Canadian Parliament this session as to the financial requirements from Parliament for the Canadian National as a result of 1926 operations, it was stated that $31,000,000 would be all that the House would be asked to vote, a decrease from the previous year of $19,000,000. Before the house committee on national railways and shipping last week Sir Henry Thornton, president of the C. N. R., gave the particulars of the probable result of operation this year. He estimates that the net income from operation this year will be $34,379,829, the estimate being based on last year's results.

Fourteen Passengers Killed at Gray, Pa.

In a rear collision of passenger trains on the Pennsylvania at Gray, Pa., 50 miles east of Pittsburgh, on the night of June 16, about 11:45 o'clock, 14 passengers and four employees were killed and 13 passengers and one employee were injured. Eastbound passenger train No. 50, the Pittsburgh-Washington Express, which had been stopped because of a ruptured air hose, was run into by the following passenger train, No. 40, the Cincinnati Limited, which consisted of two locomotives, a club car and nine sleeping cars. Both locomotives of No. 40 were overturned and the club car was wrecked. All four tracks were blocked. Five passengers in the club car of No. 40 and nine in the rear sleeping car of No. 50 were killed. Both enginemen and one fireman of No. 40 were killed and the baggageman on that train was reported missing.

A statement issued by the railroad company said that the flagman of No. 50 had gone back and placed torpedoes and fusees, and that when he was recalled he was passed by train No. 40 before he reached his own train; No. 40 having passed the signal [presumably an automatic block signal] as well as the burning fusees and the torpedoes.

Four Members of Mediation Board Appointed

President Coolidge on June 14 sent to the Senate the nominations of four of the five members of the Board of Mediation provided for in the railway labor act which was passed recently. It is expected that the fifth nomination will be made shortly. The first four are: Edwin P. Morrow, of Kentucky, a member of the old Railroad Labor Board, for a term of four years; G. W. W. Hanger, a member of the old Railroad Labor Board, for a term of two years; Samuel E. Winslow, former Representative in Congress from Massachusetts and chairman of the House committee on interstate and foreign commerce, for a term of five years, and Hywel Davies, a conciliator in the Department of Labor, for a term of one year.

Automobile Accidents Increase

According to a report which has been made public by the National Bureau of Casualty and Surety Underwriters, based on statistics from prominent cities, with estimates for the rest of the country, there were killed in automobile accidents in the United States, in 1925, no less than 22,500 persons, which number is about 10 per cent above the total recorded in 1924. The present total includes 1,784 fatalities at grade crossings of railroads. It is estimated that of the victims reported in 1925, over 6,000 were children under fifteen years of age.

A representative of the American Road Builders' Association supplements the foregoing with an estimate that in the whole world the total number of persons killed in automobile accidents in 1925, was 30,400; and 868,000 were injured.

Safety Program for July

L. G. Bentley, chairman of the committee on education of the Safety Section of the American Railway Association, in circular No. 127, has issued the program to be followed during the month of July in the general campaign to reduce by 35 per cent, before the year 1931, the total number of casualties to railroad employees, as compared with 1924. His text is taken from the first paragraph of the "general notice" of the standard code of train rules: "SAFETY IS OF THE FIRST IMPORTANCE IN THE DISCHARGE OF DUTY"; a reminder that this subject was prominent in railroad life long before the beginning of the modern "safety-first" movement. Circular 127 deals with the necessity for rules; with the selection and training of new employees, and hints as to how to deal with violations of rules. The following points are set forth as the qualifications which should be sought in a workman when looking for candidates for a foremanship:

1—A conscientious desire for a safe administration.
2—Ability to win the regard and respect of subordinates.
3—Knowledge of the business to be supervised.
4—Ability to systematize.
5—Vision for development.

Proposed Railroad Legislation

Senator Willis of Ohio has introduced in the Senate a bill, S. 4449, requiring carriers to settle all claims for loss, damage or injury to property amounting to less than $200 within six months from the filing of written claim, under penalty of 50 per cent per annum interest as additional damages with a minimum of $25.

The House committee on interstate and foreign commerce at its meeting on June 16 decided to postpone until next session further consideration of coal legislation.

Senator Gooding has served notice of his intention to offer his revised fourth section bill as a "rider" amendment to the rivers and harbors authorization bill when it comes up in the Senate.

Senator Howell has had printed an amendment to be offered to the bill to abolish the Pullman surcharge to provide that the elimination of the surcharge shall not become effective until the Interstate Commerce Commission has effected reductions equivalent to 4.4 per cent in the rates on products of agriculture, including livestock.

Senator Mayfield, in the debate on the farm relief bill in the Senate, urged an amendment repealing section 15a of the transportation act. Senator Blease has had printed an amendment to be offered to the farm bill making unlawful any freight rate on farm products between points in the United States in excess of one-twentieth of the selling price at the point where the products are disposed of.

Railroad Celebration at New Brighton, Pa.

The completion of the extensive improvements made within the last four years by the Pennsylvania Railroad at New Brighton and Beaver Falls, Pennsylvania, 28 miles from Pittsburgh, was made the occasion of a celebration in those towns on Tuesday afternoon, June 15, by the city and the railroad company, to which were invited city officers, from adjacent towns, officers of other railroads and representatives of various civic bodies, and in connection with which a dinner was given in the evening to about 500 guests.. Officers of the Pennsylvania, to the number of about 100, ranging through all grades from president down, went to New Brighton on two special trains. The speakers at the dinner were Judge Frank E. Reader and Vice-President E. T. Whiter, of the railroad company. The Pitcairn band and three quartets of singers, made up of Pennsylvania employees, furnished the music, and E. F. Wendt was master of ceremonies.

This improvement, which includes a four-track railroad 4½ miles long, adjacent to the river bank, two new station buildings, and a new bridge over the Beaver River, will result in the abandonment of the main line of the railroad for a considerable distance through Fifth Avenue, a prominent street of New Brighton, and abolishes what has been a narrow neck in the four-track line of the road from Pittsburgh westward. Twelve grade crossings are abolished. The cost of the improvement has been about $7,000,000.

Operating Revenues and Operating Expenses of Class I Steam Roads in the United States

(For 183 Steam Roads, Including 13 Switching and Terminal Companies)

For the Month of April, 1926 and 1925

Item	United States		Eastern District		Pocahontas Region		Southern Region		Western District	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Average number of miles operated	237,077.19	236,837.27	59,361.13	59,546.92	5,554.39	5,534.18	38,699.73	38,526.57	133,461.94	133,229.60
Revenues:										
Freight	$370,024,381	$347,165,963	$169,518,991	$158,385,168	$17,877,361	$16,021,160	$54,121,243	$50,677,139	$128,506,786	$122,082,496
Passenger	a 80,640,736	b 78,410,168	40,882,543	39,941,772	1,829,539	1,837,922	12,341,332	11,107,440	25,587,322	25,523,034
Mail	8,015,794	8,166,033	3,062,879	3,180,883	226,427	199,860	1,183,195	1,150,864	3,543,293	3,634,426
Express	12,867,133	13,483,340	6,100,987	6,913,895	274,055	350,197	2,017,495	1,937,163	4,474,596	4,282,085
All other transportation	17,638,465	16,393,676	9,504,292	8,956,928	279,580	183,321	1,349,397	1,237,155	6,505,196	6,016,272
Incidental	9,778,083	9,439,880	5,093,088	4,859,581	434,736	346,927	1,313,735	1,186,059	2,936,524	3,047,313
Joint facility—Cr.	1,087,358	851,316	442,473	387,085	12,678	15,742	147,454	133,532	484,753	314,957
Joint facility—Dr.	389,982	218,522	135,610	100,937	3,055	1,865	33,779	35,796	217,538	79,924
Ry. operat'g revenues	499,661,968	473,691,854	234,469,643	222,524,375	20,931,321	18,953,264	72,440,072	67,393,556	171,820,952	164,820,659
Expenses:										
Maintenance of way and structures	71,931,417	68,140,897	28,606,764	28,129,203	3,096,940	2,830,557	10,550,726	9,827,244	29,676,987	27,353,893
Maintenance of equipm't	108,312,103	104,688,524	52,568,417	50,341,651	4,973,737	4,884,442	14,227,583	12,925,847	36,542,366	36,536,584
Traffic	9,355,933	8,564,535	3,359,444	3,201,112	247,279	220,373	1,677,226	1,491,470	4,071,984	3,651,580
Transportation	176,378,773	171,738,275	83,455,752	81,096,118	5,659,317	5,544,876	25,740,539	23,574,951	61,523,165	61,522,330
Miscellaneous operat'ns.	4,498,931	4,103,582	2,118,145	1,869,427	93,719	93,839	591,086	544,488	1,695,981	1,595,828
General	15,630,171	14,447,760	7,272,275	6,330,600	481,913	482,987	2,029,788	1,861,102	5,846,195	5,773,071
Transportation for investment—Cr.	1,274,248	906,311	139,850	118,914	29,675	49,865	239,832	172,453	864,891	565,079
Ry. operating expenses	384,833,080	370,777,262	177,240,947	170,849,197	14,523,230	14,007,209	54,577,116	50,052,649	138,491,787	135,868,207
Net revenue from railway operations	114,828,888	102,914,592	57,228,696	51,675,178	6,408,091	4,946,055	17,862,956	17,340,907	33,329,145	28,952,452
Railway tax accruals	30,188,496	28,166,558	12,733,635	11,712,638	1,526,722	1,227,469	4,273,980	3,966,823	11,654,159	11,259,628
Uncollectible ry. rev's	157,286	146,498	81,986	70,881	3,620	3,239	19,282	21,338	52,398	51,040
Ry. operating income	84,483,106	74,601,536	44,413,075	39,891,659	4,877,749	3,715,347	13,569,694	13,352,746	21,622,588	17,641,784
Equipm't rents—Dr. bal.	6,485,514	6,376,562	4,206,736	3,922,265	d666,874	d417,140	1,423,930	1,135,324	1,521,722	1,736,113
Joint facility rent—Dr. balance	1,715,963	1,759,652	657,958	816,339	94,242	94,575	137,617	81,436	826,152	767,302
Net ry. oper'g income	76,281,629	66,465,322	39,548,387	35,153,055	5,450,381	4,037,912	12,008,147	12,135,986	19,274,714	15,138,369
Ratio of expenses to revenues (per cent)	77.02	78.27	75.59	76.78	69.39	73.90	75.34	74.27	80.60	82.43

For Four Months Ended with April, 1926, and 1925

Item	United States		Eastern District		Pocahontas Region		Southern Region		Western District	
	1926	1925	1926	1925	1926	1925	1926	1925	1926	1925
Average number of miles operated	237,059.47	236,815.96	59,371.95	59,553.78	5,542.15	5,532.10	38,699.75	38,506.38	133,445.62	133,223.70
Revenues:										
Freight	1,459,065,701	1,395,656,736	652,326,081	627,609,698	74,891,558	65,936,131	220,664,723	202,670,489	511,183,339	499,440,418
Passenger	c 329,518,630	e 324,325,971	158,992,937	157,090,995	7,323,193	7,544,929	56,241,250	51,122,630	106,961,250	108,567,417
Mail	31,705,152	32,173,985	11,932,471	12,340,909	856,244	856,288	4,767,739	4,582,601	14,148,698	14,394,187
Express	45,039,169	45,577,427	21,212,673	21,965,390	1,005,021	1,117,698	6,978,697	6,713,132	15,842,778	15,781,207
All other transportation	64,549,825	62,878,799	36,016,436	35,315,753	828,119	805,867	4,260,747	4,043,121	23,444,523	22,714,058
Incidental	38,705,981	37,322,151	19,578,829	18,688,005	1,556,311	1,349,123	5,829,362	5,136,710	11,741,479	12,148,313
Joint facility—Cr.	4,262,591	3,480,392	1,731,172	1,572,032	54,891	61,895	565,128	527,900	1,911,400	1,318,565
Joint facility—Dr.	1,531,921	851,580	530,057	403,712	8,976	8,298	135,343	139,886	857,545	299,684
Ry. operat'g revenues	1,971,315,128	1,900,563,881	901,260,542	874,179,070	86,506,361	77,663,633	299,172,303	274,656,697	684,375,922	674,064,481
Expenses:										
Maintenance of way and structures	256,225,999	241,172,401	107,186,991	102,982,519	11,684,864	10,861,904	40,466,964	36,677,372	96,887,180	90,650,606
Maintenance of equipm't	427,549,175	423,619,882	205,944,974	205,303,176	19,747,205	18,953,237	56,269,271	52,143,121	145,587,725	147,220,348
Traffic	36,436,168	33,687,110	13,240,864	12,495,104	974,727	882,535	6,784,877	6,134,628	15,435,700	14,174,843
Transportation	725,343,405	718,442,502	344,389,424	339,717,549	24,332,900	23,307,451	105,642,906	97,282,913	250,978,175	258,134,589
Miscellaneous operat'ns.	17,903,596	16,676,320	8,328,489	7,818,502	383,069	369,033	2,632,045	2,292,497	6,559,993	6,196,288
General	61,307,721	57,596,241	28,344,064	25,453,827	1,873,523	1,873,717	7,891,882	7,386,588	23,198,452	22,882,109
Transportation for investment—Cr.	4,220,822	3,368,533	473,014	572,725	88,863	106,767	891,375	571,605	2,767,570	2,117,436
Ry. operat'g expenses	1,520,545,242	1,487,825,923	706,961,792	693,197,952	58,907,225	56,141,110	218,796,570	201,345,514	535,879,655	537,141,347
Net revenue from railway operations	450,769,886	412,737,958	194,298,750	180,981,118	27,599,136	21,522,523	80,375,733	73,311,183	148,496,267	136,923,134
Railway tax accruals	117,878,918	110,479,747	46,574,860	43,584,575	6,099,130	4,904,474	17,348,382	15,766,993	47,856,546	46,223,705
Uncollectible ry. rev's	555,614	542,061	290,215	228,633	14,960	24,852	57,588	72,726	192,851	215,850
Ry. operating income	332,335,354	301,716,150	147,433,675	137,167,910	21,485,046	16,593,197	62,969,763	57,471,464	100,446,870	90,483,579
Equipm't rents—Dr. bal.	24,938,367	23,727,990	13,872,119	13,125,397	d2,576,459	d1,862,205	6,714,124	3,907,297	6,928,583	8,557,501
Joint facility rent—Dr. balance	7,529,915	6,892,583	3,070,285	3,014,255	406,656	383,190	447,034	379,487	3,605,940	3,115,651
Net ry. opert'g income	299,867,072	271,095,577	130,491,271	121,028,258	23,654,849	18,072,212	55,808,605	53,184,680	89,912,347	78,810,427
Ratio of expenses to revenues (per cent)	77.13	78.28	78.44	79.30	68.10	72.29	73.13	73.31	78.30	79.69

a Includes $3,180,967 sleeping and parlor car surcharge. b Includes $2,983,296 sleeping and parlor car surcharge. c Includes $13,103,280 sleeping and parlor car surcharge. d Deficit or other reverse items. e Includes $11,815,243 sleeping and parlor car surcharge.

Compiled by the Bureau of Statistics, Interstate Commerce Commission. Subject to revision.

Traffic News

The Traffic Club of Pittsburgh (Pa.) at its annual election on June 14, chose as president for the ensuing year, D. L. Wells, general agent of the Erie. The secretary is A. H. Orr (A. C. L.).

The Canadian Manufacturers' Association held its annual convention in Toronto, Ont., on June 9. The transportation committee, E. A. Mott, chairman, presented a report embodying a careful review of railway operations in Canada during the past year. This report deals largely with export trade. Motor vehicle transportation has been discussed by this committee with highway departments and legislative committees, in both Ontario and Quebec, but the committee is not yet ready to make any positive recommendations.

The Charms of Music

"Liberty Bell" is the name of a new Pullman parlor car which has been thus named as a compliment to Lieutenant-Commander John Philip Sousa, the famous band leader, who has patronized the railroads and the Pullman Company for 34 years and who expects to travel with his band this year at least 1,000,000 miles. "Liberty Bell" is the name of one of Sousa's well known marches, and other cars are to be named for other musical compositions: "Washington Post," "El Capitan," "Semper Fidelis," "Manhattan Beach," and so on. It is said that Mr. Sousa's railroad travel in the aggregate has been so extensive that he has contributed to the transportation interests of America about $5,000,000.

Freight Traffic for April and Four Months

The volume of freight transported by the Class I railroads during the first four months this year was the greatest for any corresponding period on record, according to reports compiled by the Bureau of Railway Economics. The total was 148,065,839,000 net ton-miles, exceeding by 188,246,000 net ton-miles or one-tenth of 1 per cent the best previous record established during the first four months in 1923. Compared with the corresponding period last year, the volume of freight handled this year represented an increase of 6.2 per cent.

In the Eastern district, freight traffic, measured in net ton-miles, showed an increase of 7.3 per cent for the first four months in 1926, compared with the corresponding period the year before, while in the Southern district there was an increase of 11.6 per cent. The Western district showed an increase of 2.2 per cent.

Freight traffic in April totaled 36,316,958,000 net ton-miles, a decrease of 5.2 per cent under the best previous April on record, which was in 1923. The total for April this year was, however, an increase of 8.2 per cent over the same month in 1925. In the Eastern district freight traffic showed an increase of 8.3 per cent over the same month last year, while in the Southern district there was an increase of 10.1 per cent. The Western district showed an increase of 7.2 per cent.

The daily average movement of freight cars in April was the highest for any April on record, amounting to 29 miles per day. This was an increase of one mile over the best previous April, which was in 1923, and an increase of 2.4 miles over April last year.

The average load per car in April was 26.2 tons, an increase of three-tenths of a ton over April last year and one-half a ton above April, 1924. Compared with April, 1923, however, it was a decrease of one and one-half tons.

Motor Transport News

A new limited motor bus service has been inaugurated between Portland, Ore., and Seaside via Astoria by the Spokane, Portland & Seattle Transportation Company. Two coaches are operated daily on a schedule of 4 hr. 20 min., which is 40 min. faster than the time made by the regular coaches of the same company.

The Chicago, Milwaukee & St. Paul, beginning August 1, will operate a motor bus line through Yellowstone National Park by way of Three Forks, Mont., and through a new west entrance to be known as the Gallatin Gateway, in connection with the Yellowstone National Park Transportation Company. The buses will meet trains at Three Forks and pick up passengers for a complete tour of the park. The fare for the tour will be the same as by way of other park gateways.

Regulation of Buses Given to City

Jurisdiction over motor buses, jitneys or common carriers operating wholly or in part within two cities whose territory is contiguous and where the termini are within those cities or villages, was taken away from the Michigan Utilities Commission by the state supreme court in a decision handed down on June 8. A few weeks ago the same court rendered a decision holding that authority over common carriers operating within a city rests wholly in the hands of the city government. The latest decision goes further and places the regulation of all common carriers operating between Wyandotte, River Rouge, Fordson and all contiguous towns and villages around Detroit in the hands of the authorities of these cities and villages.

Canadian Roads Study Bus Possibilities

In a lengthy discussion before the special house committee at Ottawa on national railways and shipping, Sir Henry Thornton, president of the Canadian National, told of the inroads made upon the steam roads by the motor bus and truck and stated that he thought one solution would be to put the motor bus and truck under the regulatory supervision of the Dominion Railway Board.

Sir Henry said: "Perhaps the best way for me to handle it would be to make a general statement, and then Mr. Dalrymple, the vice-president in charge of traffic, can tell the committee the details of the study we are making, and give you some idea of the situation. Motor bus competition has become very serious, not only for the railways of Canada, but also for the railways in the United States and abroad. And it is a greater competitor, of course, in older countries than it is here, because there are two things which somewhat affect motor bus competition in Canada.

"In the first place, our long and comparatively severe winters, and the general state of our roads. While we have made much progress in Canada towards improving our highways, at the same time there are many sections of the country where the highways are not in a condition to enable the satisfactory handling of motor bus traffic as a competitor of the railway, especially in the winter time. We find, in the first place, as is perfectly obvious, that motor bus competition is more severe over comparatively short distances and between large centers of population; such as, between Montreal and Toronto, or Montreal and Ottawa; something of that kind."

Mr. Dalrymple then said: "As far as we have gone with our studies, we have not yet reached the point of striking a conclusion. We have organized, and R. A. C. Henry, director of the bureau of economics, is acting as chairman of the committee. Mr. Henry is more in touch with the situation than I am. I think I am correct in stating that we are working along the lines of meeting the competition by motor buses, with a like kind of competition, but we have not yet reached the point where we can make a definite recommendation."

The Chairman: "Do you find it worse with regard to passenger or freight competition?"

Mr. Dalrymple: "Naturally, it is worse with regard to passenger traffic; but the competition is rapidly growing with regard to freight; and in the Ontario districts more than any other part of Canada."

Sir Henry then stated that probably Diesel-electric rail cars, to some degree, would meet motor bus competition.

Mr. Henry, of the Canadian National, told of the work of the special committee of officers of the C. N. R. and the Canadian Pacific Railway to study the motor bus problem. He estimated that last year the motor bus competition robbed the steam roads of $24,000,000 of business.

Commission and Court News

Interstate Commerce Commission

The Interstate Commerce Commission has issued a decision finding not justified railroad tariff schedules which deny to owners of traveling tent shows who engage special baggage cars the right to check, in regular passenger service, the usual 150 pounds of baggage allowed on each adult ticket. The schedules had been suspended by the commission on protest of the Car Owning Managers' Association.

The Interstate Commerce Commission has issued a supplemental order in the anthracite rate case, denying various petitions to vacate the portions of supplemental orders Nos. 18, 19 and 20, bringing into issue the rates, charges, regulations and practices of carriers by railroad with respect to bituminous coal shipped to tidewater.

The foregoing denial means the commission's notice says, that the commission intends to investigate both the tidewater and the all-rail rates on bituminous coal and coke from all of the original districts involved in this proceeding. The intention is to take all of the evidence with respect to the all-rail situation at the hearing commencing at Atlantic City on June 21, without adjournment, and at the same hearing to take as much of the evidence with respect to the tidewater situation as is available. If it develops that adjournment is needed in respect of the tidewater situation in order to do substantial justice, a further hearing upon that phase of the investigation will be held later.

State Commissions

Data on Crossing Dangers in Canada

"Dangerous practices of motorists, drivers of other vehicles and of pedestrians, at railway crossings" is the title of an official notice which has been issued by the Railway Commission of Canada (Volume XVI, June 8, No. 6), giving to the public a mass of data gathered from the records of the railroad companies showing the circumstances of several hundred cases of carelessness at highway crossings, during the last 12 months, including not only those which resulted in death or injury, but evidently all which were of such a character as to be useful in conveying a lesson.

This information is in the shape of tables, filling 15 pages, giving date, location and brief description, in each case, of the dangerous practice; with a column added to show, in the case of automobiles, the license number by which the car or its owner was, or could be, identified.

The only comment is a brief introduction to the effect that motor accidents are increasing in frequency, and expressing the hope that the newspapers will join the Board in educating motor drivers and others. "If accidents are to be lessened, the sane motorist must educate the culpably negligent motorists." From the records of the Canadian National, 124 cases are given. A table of equal or greater length is given from the Canadian Pacific. Most of the cases are those of drivers who persisted in driving upon a crossing in spite of warnings, and often breaking through gates. Tables are given also showing the numbers of pedestrians and bicycles passing over crossings while the gates were closed.

United States Supreme Court

Railroad Not Liable for Damages to Land by Overflow During Federal Control

In an action for damages to plaintiff's land by overflow caused at different times by a railroad embankment, the railroad pleaded that it was not liable for such of the injuries as occurred during federal control. The plaintiff obtained verdict and judgment in a state court in West Virginia which the state Supreme Court of Appeals declined to review. The case came before the Supreme Court of the United States on certiorari. The evidence showed that the chief injuries occurred in 1918 and 1919, during federal control, when during two unusual freshets portions of the bank were washed away and the land overflowed.

The Supreme Court says that its prior decisions "show that federal control did not rest on a conventional arrangement with the owner-companies, but on an exertion of supreme governmental power; a complete separation of the companies from the roads while under such control. * * * When the United States took over this road the embankment and track in the bed of the stream were taken over as part of it. If a duty rested on anyone to make any change in them it rested on the federal agents; and if maintaining and using them without change was a wrong against the plaintiff it was a wrong committed by those agents, for which no liability attached to the defendant." The judgment was reversed. —Virginian v. Mullens. Decided May 24, 1926. Opinion by Mr. Justice Van Devanter.

Evidence Insufficient to Sustain Verdict

The Supreme Court of the United States has reversed judgment of the Minnesota Supreme Court (160 Minn. 411) in an action under the federal Employers' Liability Act for the death of a brakeman on an interstate train. Deceased was rear brakeman of the road crew which was to take the train from Farmington to Austin. He was killed in the Farmington yard before the train was ready to start. No one saw the accident; the last seen of deceased he was standing on the ground beside the caboose. The brakeman of the switch crew found the body of deceased near the west end of the second car from the caboose, lying parallel with the track outside the south rail. There were indications on the ground sufficient to show that he had been between the rails; had been run over and been dragged about 15 ft. It was deceased's duty to couple the air hose, but prior to the accident all couplings had been made by the brakeman of the switch crew. An air pipe line extended about 800 ft., 12 in. south of the south rail. This had been bent and loosened but the Supreme Court holds that there was nothing to show that the pipe had any connection with the accident. The fact that deceased was run over and killed at the time and place disclosed had no tendency to show that his foot was caught. A finding that his foot was not caught was held to be quite as consistent with the evidence as a finding that it was. The record left the matter in the realm of speculation and conjecture.—Chicago, M. & St. P. v. Coogan. Decided June 1, 1926. Opinion by Mr. Justice Butler.

Commission's Rates on Rosin Upheld

The Supreme Court of the United States has affirmed the decree of the federal district court for western Michigan dismissing the suit of certain shippers asking modification of certain orders of the commission which established through rates on rosin from Atlantic and Gulf ports to Kalamazoo and Grand Rapids (Sec. 7 F (2d) 164). The determination whether a rate is unreasonable or discriminatory is a question on which the finding of the commission is conclusive if supported by substantial evidence, unless there was some irregularity in the proceeding or some error in the application of the rules of law. The Supreme Court holds that no such irregularity or error was shown. It is held that there was ample evidence to support the commission's finding that the joint through rates were reasonable; to consider the weight of the evidence is beyond the court's province. The court says: "Among the objections urged here was this: The rate from New Orleans to Chicago was fixed at 37 cents; that to Kalamazoo at 39. The rate from New Orleans to Milwaukee was fixed at 39 cents; that to Grand Rapids at 40. One of the many routes from the southern ports to Chicago theretofore open was via Cincinnati and Kalamazoo; one of those to Milwaukee was via Cincinnati and Grand Rapids. These routes had been rarely used. If retained, they would have violated the long and short haul clause of Sec. 4 of the Interstate Commerce Act unless relief therefrom was granted by the commission. That relief it refused; and, to remove this obstacle to the higher Kalamazoo and Grand Rapids rates, it directed that these routes should be abandoned. The plaintiffs insist that the commission could not lawfully close an existing route in order to avoid a fourth section violation. The authority exercised was clearly within the broad discretion vested in the commission."—Western Paper Makers' Chemical Co. v. U. S. Decided May 24, 1926. Opinion by Mr. Justice Brandeis.

Equipment and Supplies

Locomotives

THE NEW YORK CENTRAL contemplates buying 20 4-6-4 type locomotives.

THE JACKSONVILLE TERMINAL contemplates coming into the market for a number of locomotives.

THE SEABOARD AIR LINE contemplates coming into the market shortly for a number of locomotives.

Freight Cars

THE NORFOLK & WESTERN will build 250 flat cars in its own shops.

THE NORTH AMERICAN CAR COMPANY has ordered 300 tank cars from the Bethlehem Steel Company.

Passenger Cars

THE ST. LOUIS-SAN FRANCISCO has ordered four 60-ft. combination passenger and baggage, gas-electric cars from the Westinghouse Electric & Manufacturing Company and the J. G. Brill Company.

THE PENNSYLVANIA has ordered two standard 60-ft. combination baggage and passenger, gas-electric cars from the Westinghouse Electric & Manufacturing Company and the J. G. Brill Company.

THE NEW YORK, WESTCHESTER & BOSTON has ordered 10 motor passenger cars from the Pressed Steel Car Company. This is in addition to the 10 cars previously ordered from the same builder and reported in the *Railway Age* of March 20.

THE SEABOARD AIR LINE has ordered 20 all steel passenger coaches from the American Car & Foundry Company, and 7 dining cars from the Pullman Car & Manufacturing Corporation. Inquiry for from 10 to 12 steel dining cars and 20 coaches was reported in the *Railway Age* of May 29. This company is also inquiring for from 30 to 40 express cars.

Motor Vehicles

THE NEW ENGLAND TRANSPORTATION COMPANY, the New York, New Haven & Hartford's bus operating subsidiary, has ordered 15 type Y parlor motor coaches from the Yellow Truck & Coach Manufacturing Company, through their agents, the National Railway Appliance Company.

Machinery and Tools

THE LOUISVILLE & NASHVILLE is inquiring for one 22-in. engine lathe.

THE ILLINOIS CENTRAL is inquiring for one 30-ton locomotive traveling crane.

THE CHICAGO, BURLINGTON & QUINCY has ordered one ditcher from the American Hoist & Derrick Company.

THE CHICAGO & NORTH WESTERN is inquiring for one 40-in. by 40-in. by 10-ft. motor driven planer, one 5/8-in. by 10-ft. bending roll, and one 10-ft. flanging clamp.

THE CHARLESTON & WESTERN CAROLINA has ordered one 300 to 600-ton Chambersburg combination mounting and demounting wheel press from Manning, Maxwell & Moore, Inc.

THE WABASH has ordered one 1-ton, one 3-ton and one 5-ton electric cranes from the Shaw Crane Works. This company also has ordered two 15-ton, 3-motor and one 200-ton cranes with two 100-ton trolleys, from the Whiting Corporation.

THE ILLINOIS CENTRAL has ordered one 36-in. heavy duty planer, one 54-in. car wheel lathe, one 96-in., 800-ton wheel press, one 1,500-lb. single-frame steam hammer, two 1,100-lb. single-frame steam hammers and one 32-in. locomotive slotting machine from the Niles-Bement-Pond Company.

Iron and Steel

THE SOUTHERN RAILWAY is inquiring for 4,300 tons of structural steel for miscellaneous bridge work.

THE MISSOURI PACIFIC has ordered 700 tons of structural steel for bridge work from the American Bridge Company.

THE SOUTHERN PACIFIC has divided an order for 23,748 tons of 75-lb., 90-lb., and 110-lb. rail, and 4,280 tons of 128-lb. girder rails between the Colorado Fuel & Iron Company and the Tennessee Coal, Iron & Railroad Company.

THE WABASH has ordered 1,875 tons of structural steel for a locomotive shop and additional facilities at Decatur, Ill., from the Mississippi Valley Structural Steel Company. This company also has ordered 300 tons of structural steel for bridge work from the American Bridge Company.

Miscellaneous

THE WABASH is asking for bids for the construction of three car ferries.

Signaling

THE ATLANTIC COAST LINE has ordered, from the Union Switch & Signal Company, materials for automatic block signaling on its line from Waycross, Ga., to Folkston, 34 miles, single track. There will be 66 signals, style S, 3-position. The absolute permissive block scheme will be used.

THE WABASH has ordered from the Union Switch & Signal Company material for the enlargement of the electric interlocking at Rouge River, near Detroit, Mich.; a 19-lever section, type F, for the interlocking machine, 17 switch layouts, 22 signals and other apparatus. Track circuits will be made a. c. throughout the plant.

Freight Terminal at Sola, Near Buenos Aires

Supply Trade News

Eagle-Picher Lead Company has moved its Chicago office from 208 South La Salle street to 134 North La Salle street.

The Graybar Electric Company has removed its Buffalo, N. Y., branch office from 709 Main street to 77-79 Swan street.

The American Steel Foundries has moved its St. Louis, Mo., office from the Frisco building to 1717 Railway Exchange building.

Delbert C. Davis and **Charles L. Kenyon** have been appointed assistant treasurers of the **General Electric Company,** Schenectady, N. Y.

The American Steel & Wire Company has opened a district office for Oklahoma and Kansas at 217 Atlas Life building, Tulsa, Okla., in charge of **George F. Bell.**

Robert B. Jennings, formerly division engineer of the Canadian National, with headquarters at Montreal, Que., has been appointed general manager of the **Robert W. Hunt Company, Ltd.,** with headquarters at Montreal.

The Osgood Company, Marion, Ohio, has purchased the patterns, drawings and assets of the **Fairbanks Steam Shovel Company** from its receiver, and will continue the manufacture of the latter company's steam and gas shovels and dredges.

G. R. S. in England

The General Railway Signal Company, Limited, of London, England, which has been representing the General Railway Signal Company of Rochester, N. Y., in Great Britain, has been merged into the Metropolitan Vickers-G. R. S., Limited, 9 Kingsway, W. C. 2, London. Except in Canada and Australia, this new company will represent, sell and install throughout the British Empire the signal, train control and car retarding devices of the General Railway Signal Company, which material will be made hereafter by the Metropolitan-Vickers Electrical Company Limited of England. The General Railway Signal Proprietary Limited of Australia will continue to be the representative in that country, but the apparatus will be manufactured by the Metropolitan-Vickers Electrical Company Limited at the latter's English and Australian factories. The General Railway Signal Company of Rochester will continue to manufacture and sell its railroad devices in Canada.

Trade Publications

STEEL CROSS TIES.—The Carnegie Steel Company, Pittsburgh, Pa., has recently issued the ninth edition of its steel cross tie catalog which details the many sections of steel ties rolled by that company for various classes of tracks, and also the many types of fittings furnished for use with these ties. The catalog, which contains 46 well-illustrated pages, is divided into three distinct sections, dealing separately with the subjects of mine ties, ties for portable track and ties for steam and electric railroads.

DIRECT-INJECTION OIL ENGINES.—In a recently issued 32-page catalog, the Ingersoll-Rand Company, New York, presents its various styles of "PO" direct-injection oil engines which are of the horizontal, single stage, single acting direct-injection type operating on the four-stroke cycle. This catalog which is particularly well arranged, is a complete treatise on this particular type of engine and discusses and illustrates in detail the construction and functions of each vital part, as well as the adaptability of these engines as power units in various classes of service.

COMMITTEES OF ENGINEMEN AND FIREMEN who have been conferring in Cleveland, Ohio, with a view to formulating, for their respective brotherhoods, a unified demand for increases in pay, to be presented to the railroads, brought their meetings to an end on June 14, after eight days of discussion, with the announcement that they had been unable to agree.

Railway Construction

BALTIMORE & OHIO.—A contract has been awarded to J. R. Livezey, Baltimore, Md., for cork insulation and refrigerator doors for the company's new fruit auction building at Philadelphia, to cost approximately $100,000.

BOSTON & ALBANY.—A contract has been awarded to the J. F. Fitzgerald Construction Company, Boston, Mass., for alteration to bridge 73.08 and bridge 73.17, at Warren, Mass.

CENTRAL OF GEORGIA.—This company has awarded a contract to the Peerless Plumbing & Heating Company, Savannah, Ga., for the installation of plumbing and heating in the hospital at Savannah, Ga. It has also awarded a contract for electric wiring for the hospital to the Byck Electric Company, Savannah, Ga. The total cost is estimated at $57,000. A contract has been awarded to Fairbanks, Morse & Co., Chicago, Ill., for the construction of a reinforced concrete coaling station at Raymond, Ga., to cost approximately $36,000.

CHESAPEAKE & OHIO.—Bids are being taken for the construction of a water treating plant at Raleigh, West Va.

CHICAGO & EASTERN ILLINOIS.—Bids are being taken for the construction of an engine terminal at Evansville, Ind., including a 16-stall roundhouse, a power house, a machine shop and a storehouse.

CHICAGO & NORTH WESTERN.—Bids are being taken for the construction of a water station and pipe lines at New Ulm, Minn. Bids are also being taken for the construction of a 6-stall roundhouse addition at Fremont, Neb.

CHICAGO & NORTH WESTERN.—The Interstate Commerce Commission has authorized this company to construct a line from a connection with its Wisconsin division at Wiscona to a point on its Lake Shore division north of Whitefish Bay, Wis., a distance of three miles. Permission was also given to abandon that portion of the Lake Shore division from Shorewood to a point north of Whitefish Bay, approximately four miles in length. The authority to construct was granted on the condition that the work shall commence on or before July and be completed on or before December 31, 1929. The line to be abandoned must be kept in operation until completion of the construction.

CHICAGO, ROCK ISLAND & PACIFIC.—The construction of an extension from Billings, Mont., to Ponca City, Okla., will be completed by the end of this year.

CHICAGO, ROCK ISLAND & PACIFIC.—The Interstate Commerce Commission has issued a certificate authorizing this company to construct an extension from a connection with its Iowa-Minnesota division, at or near Clark's Grove, through Hollandale to Maple Island,. In connection with this same project the receivers of the Chicago, Milwaukee & St. Paul have been authorized to construct an extension from a connection with the St. Paul's Southern Minnesota division, to a connection with the projected line of the Rock Island at a point east of Hollandale, 2 miles. The Milwaukee desired also to construct a branch from a point near Hollandale to Maple Island, 10.5 miles, but the commission established the proviso instead that the Rock Island should grant trackage rights to the Milwaukee between these points.

DODGE CITY & CIMARRON VALLEY.—A contract has been awarded by this company, which is a subsidiary of the Atchison, Topeka & Santa Fe, to the Cook & O'Brien Construction Company, for an extension from Manter, Kan., to Joycoy, Colo., a distance of 56 miles. A sub-contract has been let to Jerome Moss for all buildings and water stations on the line.

MINNEAPOLIS, NORTHFIELD & SOUTHERN.—The Interstate Commerce Commission has issued a certificate authorizing this company to construct an extension from Golden Valley to a connection with the Minneapolis, St. Paul & Sault Ste. Marie at Crystal, 6 miles, Hennepin County, Minn. The cost is estimated at $350,000.

Railway Financial News

ATCHISON, TOPEKA & SANTA FE.—*Valuation.*—Counsel for this company, in a brief filed with the Interstate Commerce Commission, ask that the value of its property be placed at not less than $750,000,000 as of valuation date, as compared with a final value for rate-making purposes of $571,129,905 found by the commission in its tentative valuation report. The cost of reproduction new of the properties other than land and working capital, plus the present value of land and the amount allowed for working capital, as found by the commission, was $656,538,295. To this, according to the brief, should be added $28,645,798 for items omitted and $68,000,000 for going concern value.

BALTIMORE & OHIO.—*Equipment Trust Certificates.*—The Interstate Commerce Commission has authorized an issue of $7,475,000 of 4½ per cent equipment trust certificates, to be sold at not less than 97.78.

CHICAGO, BURLINGTON & QUINCY.—*Valuation Hearing.*—The Interstate Commerce Commission has postponed from July 8 to September 8 the hearing before Examiner Woodrow on the tentative valuation reports on the various companies comprised in the Burlington system.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—*Guaranty Settlement.*—The Interstate Commerce Commission, upon argument and further consideration on petition of the carrier, has reaffirmed the findings of its previous report that the amount necessary to make good the guaranty for the six months following the termination of federal control is $1,076,515, and that the company has been overpaid by advance and partial payments by $198,484. The company claimed an additional amount of at least $357,849, practically all of which is attributed to the alleged failure of the commission to fix an adequate amount to be included in operating expenses for maintenance.

GREAT NORTHERN.—*Guaranty Settlement.*—The Interstate Commerce Commission, upon argument and further consideration of its guaranty settlement for the six months following the termination of federal control, has issued a revised certificate in which it finds that the amount necessary to make good the guaranty of section 209 of the transportation act for the Great Northern, the Farmers' Grain Shipping Company and the Watertown & Sioux Falls, is $11,277,331.79, an increase of $98,444 over the amount certified in its former report, and that the company has been overpaid by advances and partial payments so that it owes the United States $1,222,668.21. In other respects the findings of the report of June 17, 1925, on which the company asked a reconsideration, are affirmed. The report contains a review of the entire question of settlements with the carriers for the guaranty period, much of it devoted to the method for ascertaining the amounts to be included in operating expenses for maintenance for the purpose of ascertaining the guaranty. The Great Northern, according to the report, at various times had made varying claims as to the amount due it as guaranty, ranging from $12,500,000, the amount it received, up to $18,645,653. The correction allowed is made on the basis of a review of the accounts. As to the company's contention denying the authority of the commission to question the correctness of the advance and partial payment certificates, the commission says that this is based on a misconception of the purpose of the certificates.

HAMPDEN RAILROAD.—*Sold.*—Marks Angel of Boston was the successful bidder for the property of the Hampden Railroad recently offered for sale to the highest bidder by the receiver. Mr. Angel's bid was $30,800 and he will junk the railroad. The line extends from a connection with the Boston & Albany at a point east of Springfield, Mass., to a connection with the Central Massachusetts line of the Boston & Maine at Bondsville, about 14 miles.

Upon completion, the Hampden was to have been leased for 99 years to the Boston & Maine which Charles S. Mellen had merged into the New York, New Haven & Hartford system. The directors of the Boston & Maine voted on December 29, 1913, to buy or lease the road on terms approved by the Massachusetts Railroad Commission, but the Massachusetts legislature on June 18, 1914, defeated the bill providing for the proposed lease. Minority stockholders of the Boston & Maine at the time protested the lease on the ground that the cost of building the Hampden Railroad had been exorbitant, amounting to about $250,000 a mile. As the proposed lease of the road to the Boston & Maine was not approved by the Public Service Commission, the road never has been opened for operation.

LOS ANGELES & SALT LAKE.—*Valuation Argument Advanced.*—The Supreme Court of the United States has granted a motion of the government to advance the appeal from the decision of the federal court for the southern district of California which held null and void the Interstate Commerce Commission's final valuation of this property, and has assigned the case for argument on January 3, 1927.

NEW YORK, CHICAGO & ST. LOUIS.—*Merger Plan Discussed with Interstate Commerce Commissioner.*—Representatives of the majority and minority interests in the Chesapeake & Ohio held a conference on June 10 at Washington with Commissioner B. H. Meyer of the Interstate Commerce Commission, who conducted the hearings on the Nickel Plate merger application last year. This fact was made public in a letter addressed by Commissioner Meyer to Senators and Representatives from Indiana who had written him on June 5 urging the calling of a conference of the parties involved in the proposed merger with a view to the submission of some plan for keeping in operation the Chicago, Attica & Southern, which was to have been included in the Nickel Plate merger if it had been approved, but which they said is now in danger of abandonment. Commissioner Meyer said that he had just held a conference by previous arrangement and that at the conclusion of it he had taken up the matter of the Chicago, Attica & Southern with O. P. Van Sweringen who had stated that he would look into it promptly. Meanwhile, Mr. Meyer said, the commission will give consideration to other possibilities. While no information was made public as to the progress that has been made it is understood that the minority interests in the Chesapeake & Ohio have indicated a willingness to negotiate for a unification of the property with the Nickel Plate on a basis representing some modification of the terms formerly proposed.

NORTHERN PACIFIC.—*Abandonment.*—This company has applied to the Interstate Commerce Commission for authority to abandon its Boulder-Elkhorn branch, from Hyndman, Mont., to Queen Siding, 22 miles.

NORTHERN PACIFIC.—*Guaranty Settlement.*—The Interstate Commerce Commission, upon further consideration and argument on petition of the company, has affirmed the findings of its previous report that the amount necessary to make good to this company and its subsidiaries the guaranty for the six months' period following the termination of federal control is $10,905,094 and that the company was overpaid by advance and partial payments by $1,269,905, which is due the United States. The company had claimed that the amount found due it should be increased by $1,740,530.

PITTSBURGH & WEST VIRGINIA.—*Tentative Valuation.*—The Interstate Commerce Commission has issued a tentative valuation report placing the final value for rate-making purposes of the property owned and used for carrier purposes at $22,846,900, as of 1917.

ST. LOUIS, BROWNSVILLE & MEXICO.—*Equipment Trust Application.*—This company has applied to the Interstate Commerce Commission for authority to guarantee $750,000 of 4½ per cent equipment trust certificates sold, subject to the commission's approval, to Kuhn, Loeb & Co., at 96.25. The proceeds have been applied to purchase of equipment costing $1,000,000, consisting of 10 locomotives, 12 passenger cars and 50 gondolas. The certificates bear date of December 1, 1925, and will mature in annual installments of $50,000 from December 1, 1926, to December 1, 1940.

SEABOARD AIR LINE.—*Bonds Authorized.*—The Interstate Commerce Commission has authorized an issue of $1,623,000 first and consolidated mortgage bonds Series A, to be pledged as collateral

for short term notes. The carrier's application was for the amount of $2,022,000 of such bonds but the commission held that it had justified only the smaller amount.

TOLEDO, PEORIA & WESTERN.—*Sale.*—This company was sold at public auction at Peoria, Ill., on June 11 to D. P. McNear, Jr., of New York, a minority bond holder of the road for $1,300,000. The road, which is 224 miles long, has been in the hands of receivers since July 2, 1917.

WESTERN PACIFIC.—*Arthur Curtiss James Acquires Working Control.*—Announcement was made on June 10 that Arthur Curtiss James, said to be one of the largest holders of railroad stocks in the country, had acquired a substantial interest in the stock of the Western Pacific. His purchases are reported as sufficient to give him working control, although they do not constitute a majority of the stock outstanding. Mr. James issued a statement in connection with the announcement reading as follows:

"Believing firmly in the future of California and of the territory served by the Western Pacific, I have personally acquired a substantial interest in the stock of this company. For many years I have been a holder and believer in Great Northern, Northern Pacific, Burlington, Southern Pacific and other Western railroads, and now have added to my railroad interests the holding of Western Pacific, having entire confidence in the ability of the territory served by Western Pacific to support an independent competing system, which shall have for its sole objective the upbuilding of the territory served by it.

"I believe in California and in the great west, and shall do my utmost to co-operate with the Western Pacific management in serving the public."

Mr. James stated that his purchases of stock were made in the open market and were not in pursuance to any plan of consolidation. The control of the Western Pacific has hitherto been in the hands of Alvin W. Krech, of the Equitable Trust Company, acting for the former holders of the bonds issued when the line was built. These bonds were guaranteed by the old Denver & Rio Grande, and, when they defaulted, control of the property passed from the old Denver Company and the Western Pacific was reorganized in the interest of the bondholders.

Announcement was also made that T. M. Schumacher, formerly president of the El Paso & Southwestern, and since the acquisition of that company by the Southern Pacific, vice-president of the latter in charge of traffic in Chicago, would become chairman of the executive committee of the Western Pacific about July, succeeding Mr. Krech.

Average Price of Stocks and Bonds

	June 15	Last Week	Last Year
Average price of 20 representative railway stocks	94.48	93.17	80.13
Average price of 20 representative railway bonds	96.76	96.43	91.38

Dividends Declared

Albany & Susquehanna.—4½ per cent, payable July 1 to holders of record June 15.

Chicago, Indianapolis & Louisville.—Common, 2½ per cent; common (extra), 1 per cent; preferred, 2 per cent, all payable July 10 to holders of record June 26.

Joliet & Chicago.—1¾ per cent, quarterly, payable July 5 to holders of record June 25.

Mahoning Coal.—Common, $12.50, quarterly, payable August 2 to holders of record July 15. Preferred, $1.25, semi-annually, payable July 1 to holders of record June 22.

Southern.—Common, 1¾ per cent, quarterly, payable August 2 to holders of record July 10. Preferred, 1¾ per cent, quarterly, payable July 15 to holders of record June 25.

Western Pacific.—Preferred, 1½ per cent, quarterly, payable July 3 to holders of record June 23.

Valuation Reports

The Interstate Commerce Commission has issued final or tentative valuation reports finding final values for rate-making purposes of the property owned and used for common-carrier purposes, as of the respective valuation dates, as follows:

FINAL REPORTS.

Ashley Drew & Northern	$465,500	1918
Lake Providence, Texarkana & Western	29,500	1919
Sumter & Choctaw	251,188	1917
West Virginia Northern	174,563	1918
Kentwood & Eastern	243,427	1916
Ulster & Delaware	6,468,019	1916

TENTATIVE REPORTS

Duluth Union Depot & Transfer Company	$1,161,565	1917

Railway Officers

Executive

Henry O. Havemeyer, Jr., has been appointed assistant to the president of the Brooklyn Eastern District Terminal, with headquarters at New York City.

Financial, Legal and Accounting

Frank D. Sanborn has been appointed assistant auditor of freight accounts of the Southern Pacific, with headquarters at San Francisco, Calif.

Operating

H. H. Hargreaves has been appointed acting superintendent of the Manistique & Lake Superior, with headquarters in Manistique, Mich.

W. J. Spangle has been appointed assistant trainmaster of the Ft. Wayne division of the Pennsylvania, with headquarters at Ft. Wayne, Ind., to succeed **W. L. Whiter,** transferred.

J. W. Masterson, assistant train master of the Allegheny division of the Pennsylvania, has been appointed division operator-supervising agent, Allegheny division, with headquarters at Oil City, Pa., to succeed **W. D. Williams,** deceased.

Traffic

William Pedrick, Jr., who has been appointed general passenger agent of the Pennsylvania, with headquarters at New York, a newly created position, was born on October 26, 1870, at Rancocas, Burlington county, N. J., and received his education in the local public schools, at Mount Holly Academy and Temple College at Philadelphia. He entered railway service in 1886 as a telegraph operator on the Pennsylvania, later serving as freight and ticket agent, and train dispatcher's operator. On February 15, 1893, Mr. Pedrick was promoted to the passenger traffic department at Atlantic City, where he represented the railroad for ten years. While located there, he was largely instrumental in building up the through train service between that seashore resort and New York City. He was advanced to city passenger agent at Washington, D. C., in 1903, and in May, 1905, he was transferred to Philadelphia, as acting district passenger agent, and a year later became district passenger agent. He was sent to New York City in 1912, as assistant district passenger agent, and a year later he became division passenger agent of the combined Baltimore-Washington district, which included the territory south of Washington and east of the Mississippi river. In 1917 Mr. Pedrick returned to New York City as division passenger agent, where he had jurisdiction over all matters pertaining to passenger traffic in Greater New York, Eastern New York State, Northern New Jersey, Connecticut, Western Massachusetts and the City of Montreal, Canada. In November, 1923, Mr. Pedrick was appointed general eastern passenger agent at New York,

William Pedrick, Jr.

which position he was holding at the time of his recent appointment as general passenger agent. Several years ago Mr. Pedrick introduced the passenger soliciting system which is still in general vogue at the present time. He is also responsible for the introduction and perfection of the comprehensive telephone and telegraph system for the distribution of Pullman space in New York City.

D. E. Crawshaw has been appointed general freight and passenger agent of the DeQueen & Eastern and the Texas, Oklahoma & Eastern, with headquarters at DeQueen, Arkansas.

H. T Duffy, assistant general agent of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Duluth, Minn., has been promoted to general agent, with the same headquarters. **G. A. Sherwood,** general agent, with headquarters at Duluth, Minn., has been appointed assistant general freight agent, with the same headquarters.

C. F. Bigelow, district passenger agent of the Southern, with headquarters at Indianapolis, Ind., has been promoted to division passenger agent, with headquarters at Lexington, Ky., to succeed **H. C. King,** deceased, and will be succeeded by **H. D. Lyons,** traveling passenger agent, with headquarters at Cincinnati, Ohio. **J. L. Martin** has been appointed Pacific Coast freight and passenger agent, with headquarters at San Francisco, Calif. **H. V. Gardner** has been appointed district freight and passenger agent, with headquarters at Los Angeles, Calif.

Mechanical

D. C. Reid has been appointed master mechanic of the Indiana Harbor Belt, with headquarters in Chicago to succeed **M. L. Zeider.**

C. M. Kirkby, special representative to the general superintendent of motive power of the Chicago, Milwaukee & St. Paul, has resigned to become mechanical engineer of the Missouri-Kansas-Texas, with headquarters at Parsons, Kans.

Engineering, Maintenance of Way and Signaling

A. W. Duke, supervisor of the Pennsylvania, with headquarters at Downingtown, Pa., has been promoted to division engineer, with headquarters at Cincinnati, Ohio, to succeed **H. C. Johnson,** who has been promoted.

Purchases and Stores

R. E. Mathis has been appointed general storekeeper of the Missouri & North Arkansas to succeed **L. Frost,** who has resigned.

K. P. Chinn has been appointed assistant general storekeeper of the Southern Pacific Lines in Texas and Louisiana, with headquarters at Houston, Tex.

A. C. Simmons, who has been acting purchasing agent of the Chicago Great Western, with headquarters at Chicago has been appointed purchasing agent.

Obituary

Walter C. Noyes, formerly judge of the United States Circuit Court of Appeals and general counsel of the Delaware & Hudson, died on June 12, after an illness of three months' duration.

Frank F. Farrar, general freight agent of the Boston & Maine, with headquarters at Boston, Mass., died at the Springfield Hospital, Springfield, Mass., on June 11, following an accident. A sketch of Mr. Farrar's railroad career appeared in the *Railway Age* of January 23, 1926, page 316.

H. F. Haag, signal engineer of the Kansas City Southern, with headquarters at Kansas City, Mo., died on June 6. He was born on May 17, 1886, at Buffalo, N. Y., and in 1906 entered the employ of the General Railway Signal Company. Later he was employed by the Lodge & Shipley Machine Tool Company, and the Cleveland, Cincinnati, Chicago & St. Louis at Cincinnati, Ohio. He entered the employ of the Kansas City Southern as draftsman in the engineering department at Kansas City in July, 1909, and was successively draftsman, chief draftsman, and assistant engineer. In 1918 he was appointed signal engineer, which position he has held until his death.

S. D. Cooper, assistant manager of treating plants of the Atchison,, Topeka & Santa Fe, who died at Topeka, Kan., on June 9, was born on March 25, 1859, at Newcastle-on-Tyne, Northumberland, Eng. He came to the United States in 1895 and the same year entered railway service as auditor of freight receipts of the Atchison, Topeka & Santa Fe at Topeka, Kan. In 1897 he was transferred to the store department, with the same headquarters, where he served successively as clerk, bookkeeper and assistant store accountant. In 1904 he was appointed chief clerk to the manager of treating plants in the tie and timber department at Topeka, in 1914 chief inspector, and in 1920 assistant manager of treating plants, which position he held up to the time of his death. Mr. Cooper was secretary-treasurer of the American Wood Preservers' Association in 1922, vice-president in 1923 and 1924, and president of the Association in 1925. He served as vice-chairman of the Committee on Wood Preservation of the American Railway Engineering Association in 1923 and as chairman from 1924 to the time of his death.

S. D. Cooper

J. B. Latimer, signal engineer of the Chicago, Burlington & Quincy, with headquarters at Chicago, died on June 10. He was born on January 19, 1865, at Baltimore, Md., and was educated at St. John's College at Annapolis, Md. He entered railway service on August 1, 1882, on the Baltimore & Ohio, with an engineering party on the construction of a line from Baltimore, Md., to Philadelphia, Pa. From October 15, 1882, to February 1, 1883, he was employed in the president's office of the Chicago, Burlington & Quincy, at Burlington, Ia. From the latter date to March 18, 1885, he was engaged in engineering work on the Colorado & Nebraska. On March 20, 1885, he was appointed storekeeper of the Chicago, Burlington & Quincy at West Burlington, Ia., which position he held until March 23, 1893, when he was placed on special duty in the office of the superintendent of terminals at Chicago. In August, 1894, he was appointed yard master and later general yard master at Chicago. From February 18, 1899, to January 18, 1903, he was roadmaster of the Chicago terminal. On the latter date he was promoted to the newly created position of signal engineer which he held until his death.

J. B. Latimer